

FEB 10 1917
UNIV. OF MICH.
LIBRARY

Railway Age Gazette

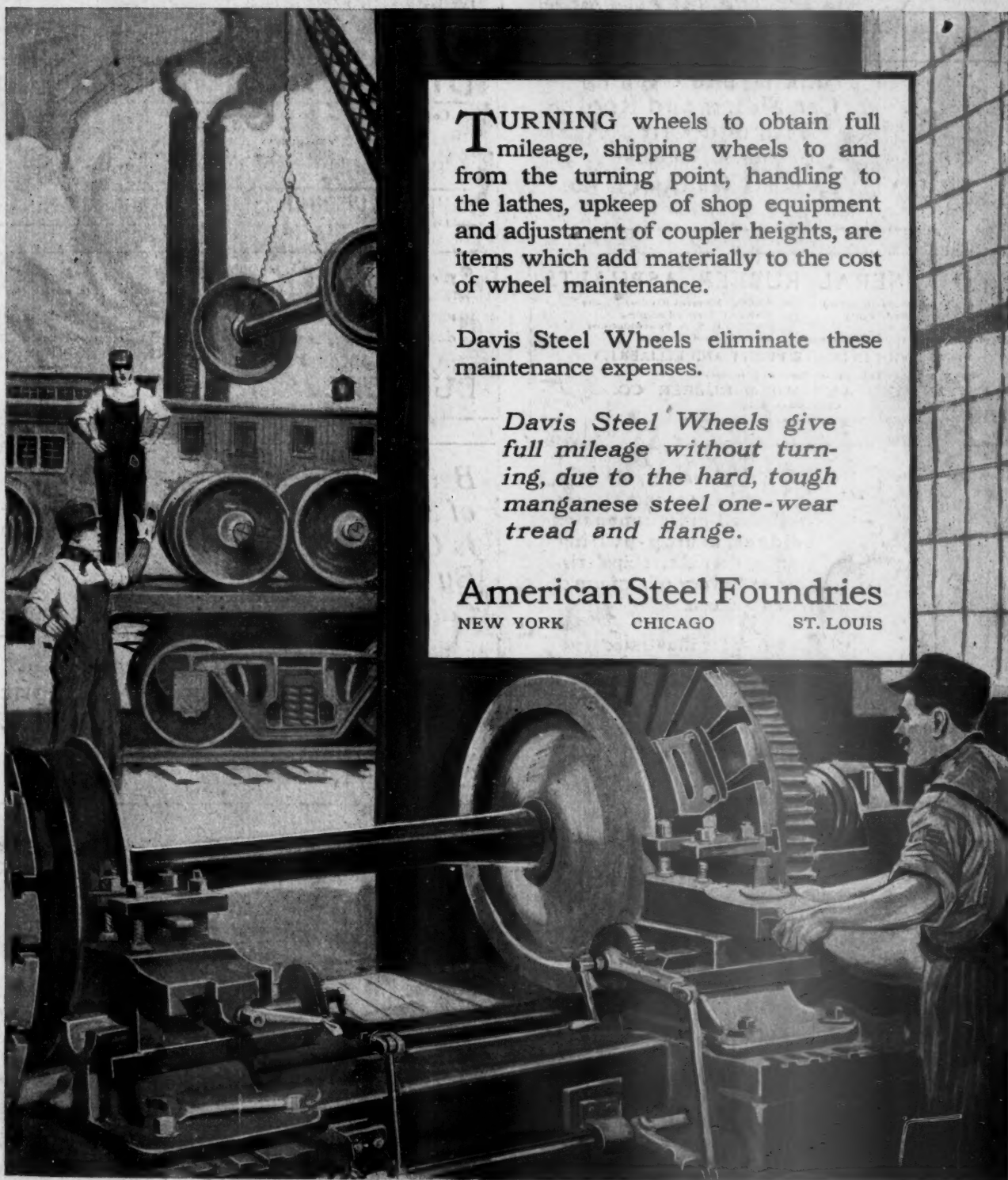
FIRST HALF OF 1917—No. 6.

SIXTY-SECOND YEAR

NEW YORK: Woolworth Building
CHICAGO: Transportation Building

NEW YORK—FEBRUARY 9, 1917—CHICAGO

CLEVELAND: Citizens Building
WASHINGTON: Home Life Bldg.



TURNING wheels to obtain full mileage, shipping wheels to and from the turning point, handling to the lathes, upkeep of shop equipment and adjustment of coupler heights, are items which add materially to the cost of wheel maintenance.

Davis Steel Wheels eliminate these maintenance expenses.

Davis Steel Wheels give full mileage without turning, due to the hard, tough manganese steel one-wear tread and flange.

American Steel Foundries
NEW YORK CHICAGO ST. LOUIS



CHASE GOAT BRAND PLUSHES AND CHASE IMITATION LEATHER

Quality standards are fixed and dependable
Several months ago a seat cover of Chase Plush was sent to us with the statement that it had been in continual service for twenty-four years.

L. C. CHASE & CO.

89 Franklin Street, BOSTON. 326 W. Madison Street, CHICAGO. 321 Fourth Avenue, NEW YORK. 308 Majestic Bldg., DETROIT.

THERMOSTATIC CONTROL
PRESSURE VAPOR
**GOLD
SYSTEMS**
COMBINATION ELECTRIC
HOT WATER-VENTILATION

IS YOUR HEATING MAINTENANCE CHARGE HIGH? WHY NOT APPLY A SYSTEM THAT WILL CUT THIS IN HALF?

Gold's Thermostatic Control System Saves 50% in Steam Consumption,
Uses Less Pipe and Fittings—Positively Gives a Uniform Temperature.

Thermostatic Control Can Be Applied to Your Existing Systems.

GOLD CAR HEATING & LIGHTING CO., 17 Battery Pl., New York



Trunking and Capping Car Siding and Roofing Ties and Cross Arms

Inquiries Solicited

Louisiana Red Cypress Co.

New Orleans

La.

DICKINSON DEVICES

Cast Iron Smoke Jacks
Light Fire-Proof Smoke Jacks
Ventilators All Materials
Cast Iron Chimneys
Cast Iron Buildings
Telephone Booths

PAUL DICKINSON Inc., 3354 South Artesian Ave., Chicago

SARCO MINERAL RUBBER ASPHALTS

SARCO No. 6 Waterproofing
SARCO Bituminous Putty
SARCO 5-M Paint
SARCO Refrigerator Compound

SARCO Mineral Rubber Floors
SARTAC-Damp-Proofing
SARCO R. S. A. Specifications
SARCO Roof Cement

SARCO PRODUCTS INSURE PURITY AND RELIABILITY

Promptness—Service—Efficiency

STANDARD ASPHALT & RUBBER CO. CHICAGO, ILL.

Specify BUCKEYE JACKS

and be assured that you are getting the best jack in design, capacity and longevity that is manufactured

Send for Catalogue

BUCKEYE JACK MFG. CO. ALLIANCE OHIO



FOR elevators, dredges, lumbering, mining, oil-well drilling, suspension bridges, stump-pulling, cranes, derricks, ships' rigging and every other form of wire rope use.

Ask for illustrated catalogue

American Steel & Wire Company

Chicago New York Cleveland Pittsburgh Worcester Denver

Export Representative: U. S. Steel Products Co., New York

Pacific Coast Representative: U. S. Steel Products Co.

San Francisco Los Angeles Portland Seattle

Better Observance of Signals Is Obtained By Using Cab Signals

As developed in connection with the Simmen System, cab signals are practical, reliable, low in first cost and maintenance cost, and adaptable to a variety of traffic conditions.

**Simmen Automatic
Railway Signal Co.**

1575 Niagara Street
Buffalo, N. Y.

Write for our booklet
"Progressive Signaling"

OPEN HEARTH STEEL LOCOMOTIVE PASSENGER AND FREIGHT SERVICE

CAR AXLES

SMOOTH FORGED OR ROUGH TURNED

J. R. JOHNSON & CO.

EST'D 1866

RICHMOND VA.

Railway Age Gazette

Volume 62

February 9, 1917

No. 6

Table of Contents

EDITORIALS:

The Turning of the Tide	211
A Sample of Government Ownership?.....	211
The Broad View of Valuation	212
Perfect Passenger Train Service.....	212
The Railways Reduced Part of the Railway Dollar.....	213

NEW BOOKS

214

LETTERS TO THE EDITOR:

Comparisons of Monthly Operating Expenses.....	215
Duty of Drivers at Highway Grade Crossings.....	216

MISCELLANEOUS:

*Steel Coaches and Baggage Cars for D. & H.....	217
---	-----

Washington Correspondence	222
*A Reinforced Concrete Smoke Jack.....	224
Instructions to B. & O. Passenger Conductors.....	224
Hearing on Valuation Protests Concluded.....	225
*Lackawanna Terminal Improvements at Buffalo.....	227
The Discomfits of Traveling in Europe.....	231
A Remedy for Coal Shortage; J. F. Porterfield.....	233
The Man Problem on the Railroads; D. C. Buell.....	234
Proposed Legislation Affecting Railways.....	237
*Pulverized Coal Plant for the Santa Fe.....	237

GENERAL NEWS SECTION..... 239

* Illustrated.

The Interstate Commerce Commission has tabulated and combined the earnings for December for about half the railroad mileage of the country. A few weeks ago it was pointed out in the *Railway Age Gazette* that November net earnings for some of the eastern roads compared unfavorably with November, 1915, and it was predicted that the December showing would be still more unfavorable when compared with December, 1915. For the 120,000 miles of road for which returns had been tabulated by the commission, revenues per mile in December, 1916, amounted to \$1,384, and in 1915 to \$1,263, while net revenue per mile was the same in both years—\$424; but this average is as favorable as it is only because roads in the southern district are making a remarkably good showing. The average per mile for the Southern district was \$429 in December, 1916, as against \$367 in 1915. On the Eastern district the average net revenue per mile in December, 1916, was \$584, comparing with \$669 in 1915. On the northern Atlantic seaboard December in 1916 was a much milder month than in 1915. The New York, New Haven & Hartford, which had a serious tie-up of its electrical divisions in 1915, made a very much better showing in 1916, operating income amounting to \$1,786,000 this year as compared with \$323,000 in the corresponding month of the previous year, so that if the average for the eastern roads includes the New Haven, as it presumably it does, it was helped to that extent and still made the strikingly unfavorable comparison shown. The Pennsylvania—lines east—operating income in 1916 was \$3,272,000, or \$935,000 less than in 1915; the Delaware, Lackawanna & Western's was \$1,071,000, or \$435,000 less than in 1915; the Delaware & Hudson's was \$513,000, or \$350,000 less than in 1915. Not only the eastern roads but also the transcontinentals are showing definitely the effect of expenses mounting faster than revenue. The Atchison, Topeka & Santa Fe operating income in December, 1916, was \$2,759,000, a decrease as compared with 1915 of \$772,000; the Southern Pacific operating income in December, 1916, was \$2,216,000, a decrease as compared with 1915 of \$617,000; the Chicago, Milwaukee & St. Paul operating income was

The Turning of the Tide

\$2,608,000 in December, 1916, a decrease of \$576,000. In the fiscal year ended June 30, 1916, a very considerable number of the larger railroad companies' annual reports commented on the great contrast in net earnings between the first half of the year and the second half. If present indications are borne out by the facts, the fiscal year ending June 30, 1917, will show just the reverse of these conditions for roads which are now being worked pretty well up to the capacity of equipment and terminals. Present indications are that the southern roads, with their much greater margin between capacity and business offered, will continue through the greater part of the present fiscal year to make a much better showing in net than in the 1916 fiscal year.

Most discussion regarding the advantages or disadvantages that might be expected from government ownership of railway centers around the question as to how the government would act if it were charged with the duty of railroad operation. A great many advocates of government ownership base their arguments on the assumption that under such circumstances the government would manage its railway affairs very differently from the way in which it usually manages the other affairs entrusted to it. The government of the Philippine Islands, which is under the jurisdiction of the war department of the United States, has recently acquired the ownership of the Manila Railroad, operating some 500 miles in the islands and at its first opportunity to show how it proposed to proceed with its administration it has appointed a politician instead of a railroad man as president of the road. Eugene E. Reed, who has been placed in this important position, has been for the past year secretary of commerce and police of the Philippine government, having been appointed to that position by President Wilson. We do not pretend to know anything about his personal qualifications for the position but the outline of his career as published in the Congressional Directory does not indicate the kind of experience which would best fit him for the office of a railroad president. In his younger days he was for several years in the contracting business and later was a train dispatcher for the Boston

A Sample of Government Ownership?

& Maine, but since 1899 his principal business seems to have been politics. He was for four years an alderman in Manchester, N. H., five times mayor of the city, for several more years a national Congressional committeeman and was a member of the Sixty-third Congress. Possibly this appointment is some evidence as to what the government would do under a plan of government ownership in this country.

THE BROAD VIEW OF VALUATION

ALTHOUGH many railway men have felt that the valuation question is of interest only to the engineer, lawyer and accountant, it is becoming more generally realized that it is of direct concern to every one connected with a road, either as an employee or as an investor. The Interstate Commerce Commission gave evidence of its realization of the importance of this problem by sitting as a body during all of last week to hear the appeals of the Atlanta, Birmingham & Atlantic and the Texas Midland from the tentative valuations which have been made on the properties of those roads. While the amounts involved in these two roads are relatively small when compared with the total railway investment of the entire country, the principles which the commission will lay down in these cases will establish precedents which will also apply to other roads. Since the authorities are practically agreed that there will be no opportunity to appeal from the valuations fixed by the commission until the rights of the carriers are threatened in some later action in which these figures may be used, the commission is sitting practically as a court of last resort and its responsibility in this matter is thereby increased.

Railway men have been much impressed with the evident desire of the director of the division of valuation and the Interstate Commerce Commission to be fair with the roads in their treatment of this difficult problem. However, the division of valuation has been unfortunate in some of the men who have been assigned to it as advisers, as these men have come to this work with pronounced anti-corporation convictions and little or no knowledge of practical railway conditions, although these conditions frequently outweigh methods which might seem more feasible theoretically in determining the program of construction, and likewise the methods of reproducing a property. The division of valuation has also been harassed by the state commissions, who have insisted on being heard on all points and have become the open opponents of the railways throughout the investigations. These commissions have contended at all times for the lowest possible valuations, sharing none of the responsibilities of the national commission to protect the investments of the public in railway property. Last week in Washington the carriers maintained with much force that the tentative valuations which have been served on the carriers do not comply with the law in several important respects and are seriously incomplete. While these reports, as originally submitted, were only tentative and were presented to bring out those points in which they are deficient it is vital that the commission exert every effort to make them complete. Much as further delay is to be deplored, it is more important that the reports be correct when issued finally and the fact that further time must elapse if the present tentative valuations are to be corrected should not lead the commission to place its approval on incomplete reports.

Whether the commission is required to determine the final value for the property of each carrier, as the roads contend, or is only required to report the elements of value, as the division of valuation now interprets the law, it is highly important that the inventories be complete. The issuance of an incomplete report, even though unintentionally, serves to injure the credit of a road just as much as though the figures were too low for any other cause. One has only to point out

the wide publicity given to the incomplete reports already issued to show the danger of creating an entirely incorrect impression regarding railway investments in the minds of the public which it will take years to remove. The investment credit of the entire country is at stake in the making of these valuations. For this reason particularly, the commission should consider this question from the broad standpoint of public policy and in the light of the maintenance of the credit of the railways.

PERFECT PASSENGER TRAIN SERVICE

A CIRCULAR of instruction for passenger conductors recently issued by the Baltimore & Ohio, and noticed in another column, is worthy of attention on all roads. To any conductor who wishes to improve himself, this circular has a great variety of suggestions; and some superintendents will wish to copy it. The frequent—or even the infrequent—issuance of circulars in this way is of questionable propriety. This one is noticed here—and is commended—because of the good things which it contains and the fitting language in which they are dressed.

The circular has brought out a number of interesting novelties. (The more commonplace paragraphs are omitted from our reprint.) The very first paragraph is somewhat novel, calling to the attention of conductors the fact that high-cost cars call for correspondingly high-class men. Usually this is assumed to be understood; but it is not understood, and needs to be emphasized. What is more incongruous than an elegant car, filled with elegant passengers, and a conductor (or a brakeman) who is far below par in his dress and appearance? This is to be seen almost every day. Second-quality service is not always so obvious as second-quality clothes; but it may be even more harmful to business. New uniforms and new (or more active) brains are needed on many fine trains. The execution of this circular order calls for high grade trainmasters to correct faults of this kind. The Baltimore & Ohio trainmasters will now have a first-class starting point from which to inculcate a good deal of profitable thinking.

"The duties . . . are delicate . . . demanding good judgment and tact . . ." This is not news; successful and popular conductors manifested these qualities 50 years ago. But what a task to cultivate them! It would be easy to name a hundred trainmasters today who do not seem to appreciate the fact that tact can be taught, in a satisfactory way, only by example. A small percentage of passenger trainmen are tactful; they lift their caps to ladies, as called for in this circular, and in other ways show that they are civilized; but why is this quality neglected by the other large per cent? These conductors who are born polite set good examples; why are not conductors of common clay made to imitate these good examples?

"Inform passengers as nearly as possible of length of delays . . ." This modern rule—which, in the ancient days prior to 1910, was only an unwritten rule, and existed, even in that crude state, only in the minds of the best conductors—is now in effect (on paper) on all the principal lines; but how well is it observed? If the Baltimore & Ohio can carry it out with even a moderate degree of satisfaction, there will be a demand for a motion picture, a la Steve Hill, showing the process in actual life. On a first class road, near New York, on a recent evening, a hundred passengers sat in a standing train for about an hour without hearing a word of authentic information as to why they were held there, or whether the delay was to last an hour, or all night. After a time some boys got out and prowled around in the dark and gathered a few scraps of information. The trouble with that conductor, apparently, was that, not knowing himself how long he was to be delayed, he failed to appreciate that it was his duty to

tell the passengers that he did not know, and *why he was ignorant*. And yet that conductor receives probably \$125 to \$175 a month. It might be suggested that the pay be raised, 10 or 20 per cent, so as to get smarter men; but a cynic at the editor's elbow observes that increases like that *are* being made; but that it is very bad form in such dealings to say anything about the quality of the services rendered! And it is specially bad form to suggest anything in regard to differences of qualifications of different men.

To get trainmen to want to *try* to carry out rules of this kind is the special desideratum—and to feel such a desire with some degree of permanency and faithfulness. Occasional flashes of intelligent devotion to duty are common enough; but what passengers want to see is the evidence that a circular like Mr. Davis' is a matter of every-day, businesslike activity on all railroads. As intimated in the opening paragraphs of this article, the circular under discussion is welcomed as a fresh and useful contribution to good discipline. Presumably, it was needed, on the Baltimore & Ohio; but as to certain other roads the evidence of the need is overwhelming and undisputed. It is evident, everywhere, that ideals of passenger train service are high; and also that high ideals are very difficult of attainment.

THE RAILWAY'S REDUCED PART OF THE RAILWAY DOLLAR

THE railway companies of the United States after paying operating expenses and taxes, have retained during the last ten years, and especially during the last six years, a smaller part of their total earnings than was ever the case before since complete statistics regarding their operations and results have been kept. This remarkable and significant fact is disclosed by analysis of statistics for the last 26 years published by the Interstate Commerce Commission in its annual report for the calendar year 1916.

The commission in its report presents a large table which gives statistics regarding the operation of the railways and their results for the years 1891-1916, inclusive. These statistics include, among other things, figures regarding annual operating revenues, operating expenses, taxes, and net operating income. Net operating income is simply what the roads have left after paying their operating expenses and taxes and, therefore, is the total amount which they can use in paying interest and dividends, and can spend on improvements made from earnings. The percentage of operating income to total operating revenues is, therefore, a very interesting and illuminating figure. When in a given year it is 30 per cent, for example, it means that in that year the railways were able to keep out of each dollar they earned 30 cents to be used in paying interest and dividends and in making improvements. When it is 25 per cent it means that they were able to keep only 25 cents out of each dollar they earned for these purposes.

The statistics which the commission publishes show that the percentage of operating income to total operating revenues has varied during the last 26 years from a maximum of 32.13, which was reached in 1902, to a minimum of 22.65, which was reached in 1914. Figures for individual years are not, however, so instructive as those for periods of years. Therefore, the commission has divided its statistics into periods of five years. The following table is made up of figures taken from the statistics given by the commission, except that the commission does not give either the percentage of operating expenses and taxes, or that of net operating income, to total operating revenues.

Since the nation's entire system and policy of railway regulation are under discussion at this time, the natural dividing line in this table is afforded by the figures for 1906. It was in that year that the Hepburn act, which first established

effective Federal regulation, went into effect, and it was rapidly following its enactment that most of the drastic railway legislation of the various States was adopted. The figures show at a glance that the ratio of net operating income to total earnings steadily declined from the time that effective regulation began to be applied in 1906 until the phenomenal and unprecedented increase of railway traffic in 1916. The period 1891-1895 was one of panic and extreme commercial depression, and a very large mileage of railways became bankrupt, but even in that period the ratio of net operating income to operating revenue averaged almost 29½ per cent. During the next five years, 1896-1900, conditions improved, and the ratio of net operating income to total earnings increased to 30.64 per cent. During the next five years the prosperity of the railways was still greater, and the ratio

AMOUNTS AND PERCENTAGES OF TOTAL OPERATING REVENUES GOING TO OPERATING EXPENSES AND TAXES AND TO NET OPERATING INCOME.

	Total operating revenues	Operating expenses and taxes	Percentage operating expenses and taxes to total operating revenues	Net operating income	Percentage net operating income to total operating revenues
1891.....	\$1,096,761,395	\$765,167,988	69.76	\$331,593,407	30.24
1892.....	1,171,407,343	815,051,491	69.58	356,355,852	30.42
1893.....	1,220,751,874	864,435,988	70.81	356,315,886	29.19
1894.....	1,073,361,797	769,539,596	71.68	303,822,201	28.32
1895.....	1,075,371,462	765,552,848	71.19	309,818,614	28.81
Total, 5 years	\$5,637,653,871	\$3,979,747,911	70.59	\$1,657,905,960	29.41
1896.....	\$1,150,169,376	\$812,959,835	70.68	\$337,209,541	29.32
1897.....	1,122,089,773	795,662,608	70.91	326,427,165	29.09
1898.....	1,247,325,621	861,801,500	69.10	385,524,121	30.90
1899.....	1,313,610,118	903,306,631	68.77	410,303,487	31.23
1900.....	1,487,041,814	1,009,760,784	67.91	477,284,030	32.09
Total, 5 years	\$6,320,239,702	\$4,383,491,358	69.36	\$1,936,748,344	30.64
1901.....	\$1,588,526,037	\$1,081,341,642	68.10	\$507,184,395	31.90
1902.....	1,726,380,267	1,170,714,184	67.87	555,666,083	32.13
1903.....	1,900,846,907	1,315,388,421	69.29	585,458,486	30.79
1904.....	1,975,174,091	1,400,592,607	70.91	574,581,484	29.09
1905.....	2,082,482,406	1,454,076,831	69.89	628,405,575	30.11
Total, 5 years	\$9,273,409,708	\$6,422,113,685	69.25	\$2,851,296,023	30.75
1906.....	\$2,325,765,167	\$1,611,662,886	69.30	\$714,102,281	30.70
1907.....	2,589,105,578	1,828,828,189	70.64	760,277,389	29.36
1908.....	2,440,638,832	1,794,956,937	73.54	645,681,895	26.46
1909.....	2,473,205,301	1,740,563,218	70.38	732,642,083	29.62
1910.....	2,812,141,575	1,985,674,819	70.65	826,466,756	29.35
Total, 5 years	\$12,640,856,453	\$8,961,686,049	70.90	\$3,679,170,404	29.10
1911.....	\$2,852,854,721	\$2,084,641,376	73.07	\$768,213,345	26.93
1912.....	2,906,415,869	2,155,149,063	74.15	751,266,806	25.85
1913.....	3,193,117,831	2,363,254,586	74.01	829,863,248	25.99
1914.....	3,111,396,422	2,406,711,343	77.35	704,685,079	22.65
1915.....	2,856,193,202	2,227,981,123	77.39	728,212,079	24.61
Total, 5 years	\$15,019,978,048	\$11,237,737,491	74.82	\$3,782,240,557	25.18
1916.....	\$3,370,789,396	\$2,349,758,852	69.71	\$1,021,030,544	30.29

of net operating income to total earnings advanced to 30.75 per cent. In the entire 15 years, from 1891 to 1905 inclusive, there were only six years when the ratio of net operating income to total operating revenues was less than 30 per cent.

On the other hand, in the 10 years, 1906-1915, the only year in which the ratio of net operating income to total operating revenues was as much as 30 per cent was the very year in which effective regulation began, viz., 1906. As the table clearly shows, before effective regulation was adopted the ratio of net operating income to operating revenues was slowly but steadily increasing, while from 1906 to 1915 it rapidly declined, and in the five years 1911-1915 inclusive, it was only 25 per cent.

Its decline was arrested, as already indicated, by an enormous increase in traffic in 1916, and there is a general impression that this was a year of record-breaking prosperity for the railways. Measured by the proportion of their total earnings, which they were allowed to keep for interest, divi-

dends, etc., however, it was not a year of record-breaking prosperity for them. The ratio of their net operating income to their total earnings was 30.29 per cent. This was just about what it averaged during the 15 years from 1891-1905, and was less than it was in 1892, 1898, 1899, 1900, 1901, 1902, 1903 or 1906. Furthermore, the year 1916 was an abnormal one. For reasons with which all railway officers are familiar, operating expenses were kept lower relatively to total earnings than possibly could be done indefinitely. During recent months the ratio of operating expenses to earnings has been increasing, and undoubtedly the ratio of net operating income to total earnings will be considerably less in the fiscal year 1917 than it was in the fiscal year 1916.

The trend of net operating income is a good test of the soundness of the position of the railways. In the first place, it is obvious that the operating expenses and taxes of a business concern cannot go on indefinitely increasing faster than its total earnings without it sooner or later coming to grief; and, of course, to say that the ratio of net operating income to total operating revenues is declining is simply another way of saying that the operating expenses and taxes of the railways are increasing faster in proportion than their total earnings. The trend of net operating income has the advantage, as a test of the soundness of the position of the railways that it does not raise such disputed questions as the reasonableness of railway capitalization or the reliability of reports regarding the investment in road and equipment.

Why has the ratio of the operating income to total earnings been declining? The answer is afforded by the following table, which shows the percentages of total earnings which, period by period, have been paid out to labor in wages, for other operating expenses (chiefly for the purchase of fuel, equipment, supplies, etc.) and in taxes.

PERCENTAGES OF TOTAL EARNINGS GOING TO LABOR, OTHER OPERATING EXPENSES, TAXES AND OPERATING INCOME

	1891-1895	1896-1900	1901-1905	1906-1910	1911-1915
Labor	40.03	39.92	40.67	43.40	43.40
Other operating expenses	25.82	26.22	26.80	27.19	27.19
Taxes	3.22	3.51	3.11	3.43	4.23
Operating income	29.41	30.64	30.75	29.10	25.18
Total	100.00	100.00	100.00	100.00	100.00

*Statistics of employees' compensation not reported prior to 1895.

†Returns for 1915 do not include about 20 of the larger systems who failed to report number and compensation of employees. The percentage showing labor charge is therefore based upon returns for 1911 to 1914 only.

This table shows that the percentages of total earnings that have been paid out for labor, for other operating expenses (equipment, supplies, fuel, etc.) and for taxes have all been increasing, while the part of their total earnings which the railways have been able to keep for interest, dividends and improvements has been declining. Relatively the largest increases have been in the items of labor cost and taxes, and the increase in taxes has been relatively the largest of all.

The *Railway Age Gazette* believes that no data which ever have been published indicate more clearly and conclusively the reasons for the decline in railway credit, the reduction in railway development, and the inadequacy of railway facilities indicated by the recent shortage of cars and congestion of traffic than do the foregoing. Let us try to sum up the true significance of the difference between the figures for the 10 years ending with 1905, and the 10 years ending with 1915. During the 10 years ending with 1905 the railway companies were able to retain to use in paying interest and dividends, and in making improvements, 30.71 cents out of every dollar they earned. During the 10 years 1906-1915 inclusive, they were able to retain for the uses mentioned only 26.97 cents out of every dollar they earned. This was a reduction of 3.74 cents per dollar of earnings. This difference may seem small, but when it is considered in its relation to the entire railroad industry it becomes a matter of

enormous importance. If during the 10 years ending with 1915 the railways had been allowed to retain 3.74 cents more than they actually were out of each dollar they earned—in other words, the same amount relatively that they were allowed to retain in the 10 years preceding—their average net operating income in the 10 years from 1906 to 1915 would have been over \$103,000,000 per year greater than it was. This would have paid a return of 5 per cent on an additional investment of over \$2,000,000,000.

In other words, if the regulating authorities and the tax gatherers had allowed the railways to retain during the 10 years since effective regulation was begun as large a portion of their total earnings as they retained in previous years the extension and development of the railways probably would not have been arrested, and the recent "car shortage" and traffic congestion would, undoubtedly, have been far less serious.

NEW BOOKS

Procedure Before the Interstate Commerce Commission, and Grounds of Proof in Rate Cases. By C. R. Hillyer, LL.B., LL.M. 44 pp. + 51 pp. + 24 pp. 6 in. x 9 in. Paper cover. Published by La Salle Extension University, Chicago. Price \$1.10, postpaid.

This is a useful handbook, the nature of which is well indicated by the two titles. It is one of a dozen books on cognate subjects, used in the educational courses of the institution by which it is published. The author was formerly an attorney for the Interstate Commerce Commission and his work gives evidence of the value of his experience there. His style is lucid and strong and there are lists of test questions at the end, by which anyone using the book can review his reading. The 24-page section contains the authoritative rules of practice issued by the commission in March, 1916.

General Foremen's Association Proceedings. Edited by William Hall, secretary, Winona, Minn. 148 pages. Illustrated. 6 in. by 9 in. Bound in paper. Published by the association.

This is the official report of the twelfth annual convention of the International Railway General Foremen's Association which was held at the Hotel Sherman, Chicago, Ill., August 29, 30, 31, and September 1. It contains an address by Frank McManamy, chief inspector locomotive boilers, Interstate Commerce Commission, in which the locomotive inspection rules were discussed. The following subjects were also considered in a very thorough manner: Car Department Problems, Counterbalance of the Steam Locomotive, Fitting up Frames and Binders, Classification of Locomotive Repairs and the Relation of Foremen to the Men under Them.

In the paper discussing the counterbalancing of locomotive driving wheels the method followed by various railroads in doing this work is given in detail.

Fuel Association Proceedings. Edited by J. G. Crawford, secretary, Chicago, Burlington & Quincy, Chicago, Ill. 355 pages. Illustrated. 6 in. by 9 in. Bound in paper and leather. Published by the association. Price, paper bound, 50 cents; leather bound, \$1.

This is the official proceeding of the eighth annual convention of the International Railway Fuel Association, which was held at the Hotel Sherman, Chicago, Ill., May 15, 16, 17 and 18. It contains a thorough discussion on the following subjects: Powdered Coal, Storage Coal, Fuel Stations, Front End Grates and Ash Pans, Care of Locomotives with Relation to Fuel Economy, Coal Distribution Record System, the Functions of a Railroad Fuel Inspector, the Human Fireman, the Influence of an Intimate Knowledge of Coal on Fuel Economy Efforts of Enginemen and Others, Interpretation of Coal Analysis With Special Reference to Non-Combustibles, What the Transportation Official can do to Promote Fuel Economy, and a paper by S. M. Felton, president, Chicago Great Western, on the Fuel Problem, Past and Present.

Letters to the Editor

COMPARISONS OF MONTHLY OPERATING EXPENSES

NEW YORK.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

I have read with much interest the article by J. H. Hopkins, entitled "A Monthly Analysis of Operating Expenses," which appeared in the *Railway Age Gazette* for January 5, 1917, for I believe that the prompt and thorough analysis of monthly operating expenses is a question which should have the continuous attention of executive officers. This is particularly true of transportation expenses, which are the most difficult to control, and it is the further development of Mr. Hopkins' plan for analyzing these expenses on the division that I wish to discuss.

The major portion of transportation expenses, representing the direct cost of operation, cannot, like maintenance expenses, be controlled in advance by appropriation. The business must be handled if and when offered—often without regard to expense—and it is, therefore, of prime importance that expensive practices should be brought promptly and automatically to the attention of the division superintendent, so that he may establish the cause and locate the responsibility as between man or machine, method or facility.

With this end in view, the monthly analysis of transportation expenses on the division should be divided into three steps: first, the separation of the 44 primary transportation accounts into two groups—which may be termed overhead and operation; second, a summary of the expenses of each group so that the superintendent can get a comprehensive view of the net results without wading through a mass of detailed figures; and third the analysis of the fluctuations in the items of each group as compared with the previous month and the same month of the previous year by means of supplementary statements or performance sheets.

In order to make the grouping complete as between overhead and operation, it is necessary to subdivide a few of the accounts which contain items belonging to each group; but for all practical purposes, the accompanying summary, which requires no further subdivision of the primary accounts than the division of the expenses of train operation and train supplies and expenses as between freight and passenger service, has been found satisfactory.

With transportation expenses for the month thus summarized, the first two steps in our study are complete, and we are ready for the third and most important step, the analysis of the results for the month compared with last month and the same month of last year, and the determination of the causes for the fluctuations in the different items. While the comparison with a year ago is interesting and useful in connection with the results for the year or period, it is not as effective as the comparison with last month in keeping track of changes in organization or in efficiency of operation. These changes should be the subject of investigation when they occur, and any necessary allowances for different climatic conditions can be made more easily for a month than for a year ago.

So far as the analysis of the overhead expenses on the division is concerned, I do not believe that anything is gained by putting the different items on the unit bases suggested by Mr. Hopkins. In some cases there is a relation between the fluctuations in these expenses from month to month and the fluctuations in the units suggested; in other cases there is very little relation, so that the unit costs would often be mis-

leading. Furthermore, the actual change in organization as compared with the previous month is the chief point of interest and the superintendent should be close enough to his

TRANSPORTATION EXPENSES			
Primary Accounts		Summary	
371	Superintendence	Superintendence and Dis- patching	
372	Despatching Trains		
373	Station Employees	Station Service	
374	Weighing, Inspection and De- murrage Bureaus		
375	Coal and Ore Wharves		
376	Station Supplies and Ex- penses		
377	Yard Masters and Yard Clerks	Yard Organization	
379	Yard Switch and Signal Tenders		
389	Yard Supplies and Expenses		
404	Signal and Interlocking Op- eration	Crossing Protection and Signal Service	
405	Crossing Protection		
406	Drawbridge Operation		
407	Telegraph and Telephone Op- eration		
410	Stationery and Printing.....	Stationery and Printing..	Overhead
		Total Organization...	
414	Insurance	Loss, Damage and Casual- ties	
415	Clearing Wrecks		
416	Damage to Property		
417	Damage to Live Stock on Right-of-Way		
418	Loss and Damage—Freight..		
419	Loss and Damage—Baggage.		
420	Injuries to Persons.....		
390	Operating Joint Yards and Terminals—Dr.	Joint Facilities	
391	Operating Joint Yards and Terminals—Cr.		
412	Operating Joint Tracks and Facilities—Dr.		
413	Operating Joint Tracks and Facilities—Cr.		
411	Other Expenses	Other Expenses	
		Total Overhead	
388	Enginehouse Expenses— Yard	Enginehouse Expenses...	
400	Enginehouse Expenses— Train		
392	Train Enginemen	Train Operation—Freight.	
393	Train Motormen		
394	Fuel for Train Locomotives.		
395	Train Power Produced.....		
396	Train Power Purchased.....		
397	Water for Train Locomotives		
398	Lubricants for Train Loco- motives		
399	Other Supplies for Train Lo- comotives		
401	Trainmen		
392	Train Enginemen	Train Operation—Passen- ger	
393	Train Motormen		
394	Fuel for Train Locomotives.		
395	Train Power Produced.....		
396	Train Power Purchased.....		
397	Water for Train Locomotives		
398	Lubricants for Train Loco- motives		
399	Other Supplies for Train Lo- comotives		
401	Trainmen		Operation
402	Train Supplies and Expenses— Freight	Miscellaneous Expenses— Freight Cars	
402	Train Supplies and Expenses— Passenger	Miscellaneous Expenses— Passenger Train Cars..	
378	Yard Conductors and Brake- men	Yard Locomotive Opera- tion	
380	Yard Enginemen		
381	Yard Motormen		
382	Fuel for Yard Locomotives.		
383	Yard Switching Power Pro- duced		
384	Yard Switching Power Pur- chased		
385	Water for Yard Locomotives		
386	Lubricants for Yard Locomo- tives		
387	Other Supplies for Yard Lo- comotives		
403	Operating Sleeping Cars....	Miscellaneous Operation..	
408	Operating Floating Equip- ment		
409	Express Service		
		Total Operation	
Total Transportation Expenses.....			

organization to know in just what station, or any other facility, the change occurred. In the same way, it is the actual fluctuation in loss, damage and casualties, joint facilities, and other expenses, as compared with the previous month, that should be investigated without regard to the business handled during the month.

So far as the expenses of operation are concerned, however, the fluctuation of the different items compared with the previous month or the same month of last year throws little light on the subject without reference to the appropriate units of work performed. In other words, each one of these items should be put on an appropriate unit basis, and any fluctuations in the unit cost for the different periods should be investigated.

For this purpose, the following supplementary statements have been found of value:

Enginehouse Expenses: Statement showing the cost of labor and material, number of engines handled, and cost per engine handled at each roundhouse for the current month compared with last month and the same month of last year.

Train Operation—Freight: Statement for the division, showing—

- (a) The cost of locomotive service (accounts 392 to 399, inclusive) per locomotive mile.
- (b) The cost of locomotive service—trainmen (account 401) and total train operation—freight per train mile, and
- (c) The cost of train operation—freight per 1,000 gross ton miles,

compared with the same items for last month and the same month last year.

Of the various items under operation, train operation—freight is the hardest to control, and on divisions where operating conditions are difficult and there is excessive overtime, it will be found advantageous to keep a detailed record of wages, overtime, and gross ton miles by individual freight trains, which may be summarized, daily or weekly, as desired, by classes of trains and engine districts. In this way the superintendent and trainmasters can keep in close touch from day to day with the expenses of freight train operation, and any unusual overtime or extra train service will be localized and brought immediately to their attention.

The extent to which the analysis of fuel consumption in both freight and passenger train service can be carried depends upon the accuracy and detail of the fuel accounting. Where reasonably accurate information is available, it will be found advantageous to allocate the fuel consumption in freight service to individual locomotives and trains, and include the expense on the statement described above.

Train Operation—Passenger: This item is much easier to control than freight train operation, as most passenger trains run on a fixed schedule and there is usually little, if any, overtime in connection with the service. A general statement for the division, however, showing the cost per locomotive mile, train mile and gross ton mile or car mile, similar to that described under train operation—freight, will be found useful.

Yard Locomotive Operation: A statement for the division showing—

- (a) The cost of yard locomotive operation (accounts 378 and 380 to 387, inclusive) per yard switching locomotive mile, and
- (b) The cost of yard locomotive operation per 100 freight train car miles,

compared with the previous month and the same month of last year. Where further analysis is desirable, it will be found advantageous to prepare a daily statement, by different yards, giving the wages of enginemen, yard conductors and brakemen; the yard switching locomotive miles; and the total cars handled; with a weekly summary showing the cost per locomotive mile and per car handled.

Train Supplies and Expenses—Freight and Passenger: While these items can be checked in a general way through the unit cost per freight car mile or passenger train car mile, there are so many dissimilar items entering into this account, such as grain doors, detouring trains, cleaning cars, icing cars, etc., that it is more satisfactory to have a detailed statement prepared each month showing the different items and the comparison with the previous month and the same month of last year.

Miscellaneous operation, which includes operation of floating equipment, sleeping cars, and express service, is not an item of great importance on most railroads and may, therefore, be omitted from the present discussion.

In conclusion, I wish to emphasize the point that any analysis of transportation expenses should recognize the distinction between those items, representing the out-of-pocket costs of direct operation, which fluctuate normally from month to month with the appropriate units of work performed, and which should, therefore, be put on a unit basis and studied accordingly; and those items which do not have this close relation to traffic, and of which the actual fluctuations from month to month should be the subject of investigation.

EXECUTIVE OFFICER.

DUTY OF DRIVERS AT HIGHWAY GRADE CROSSINGS

NEW ORLEANS, La.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

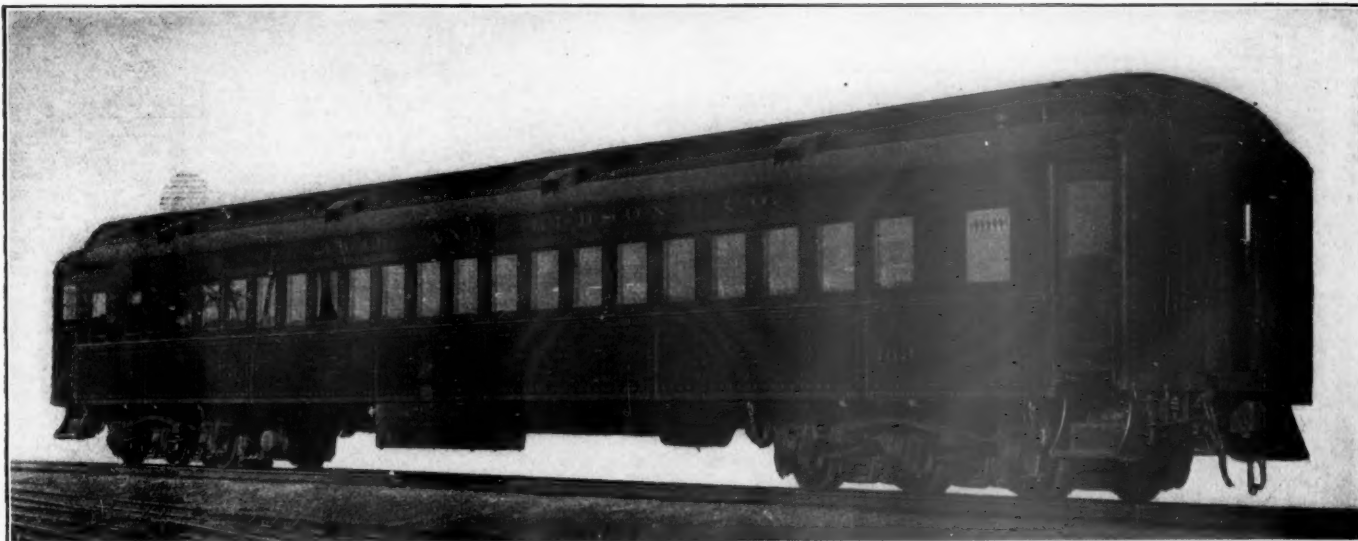
The statement, recently printed, that in the State of Louisiana the driver of an automobile is required by statute, in all cases to come to a full stop before crossing over a railroad track, is erroneous. The courts in Louisiana have frequently held—as indeed they have in other States—that the duty to stop, look and listen is an important one, and in some suits they have applied the rule rigidly. A recent case in this state was that of Gerolman vs. Terminal Company. The principle of law, and a long standing one, is that a plaintiff who sues a railroad for damages for injury at a crossing must show that he had stopped, looked and listened, *where such precaution was necessary*; otherwise he cannot recover for injuries sustained by being struck by a train. This, of course, is reasonable.

But a court decision is not a statute. There are innumerable cases where, as on a broad prairie, and where there is only a single track, and trains are infrequent, no stopping or listening is necessary; and where the most cautious person can by the use of his eyes, be fully assured of complete safety without even slackening his speed. The question of what should be done under these circumstances rarely, if ever, finds its way into the courts. No accidents happen. The accidents happen, and the question of what is a reasonable precaution arises, where there is some little difficulty in assuring oneself as to whether or not a train is approaching.

Anyone who has read the court reports will recall, however, that the judges often deal very tenderly with the careless driver. If there is the least evidence that the engineman of the train could have done anything more than he did do; or if the injured person is a young child or where there is a general sentiment in the community that the railroad company ought to be made to do something different from what it is doing in the way of safeguards, the matter will be left to a jury; and juries always take care to see that the poor (?) automobilist shall have his treasury replenished from the fat (?) treasury of the railroad company.

No State, I believe, has passed any statute requiring a stop always to be made at crossings. It is not easy to see how such a statute could be formulated in workable shape. There are cities and towns which have adopted ordinances requiring stops at all crossings at all times. They should tell the world how they go about enforcing such a rule.

E. F. S.



Steel Coach for the Delaware & Hudson.

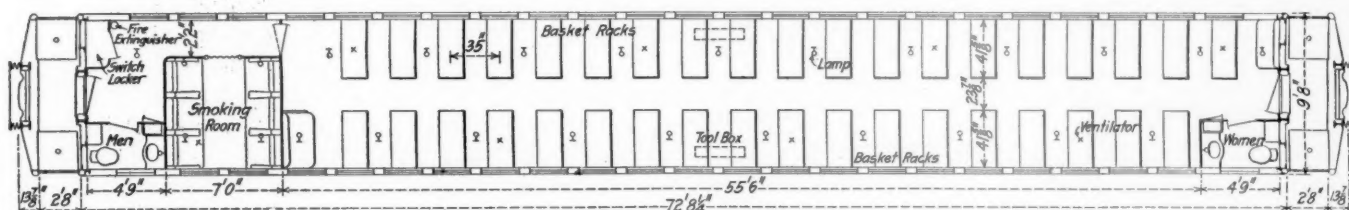
Steel Coaches and Baggage Cars for D. & H.

Two Designs of Coaches Differ Chiefly as to Seating Arrangement; Baggage Cars Have Ventilating Openings

MANY noteworthy features of design are found in an order of cars for passenger train service, recently put in service by the Delaware & Hudson, which included nine coaches built by the Barney & Smith Car Company, and nine coaches and six baggage cars built by the American Car & Foundry Company. Data concerning these cars will be

section being 24 and of the main compartment, 66 persons.

In the construction of the underframe, a combined cast steel platform and double body bolster is used. The double center sills are of the fishbelly type, 26 in. deep at the center, with 5/16-in. web plates, set 18 in. center to center. The cover plates are 7/16-in. by 30-in. with 3 1/2-in. by 3 1/2-in.

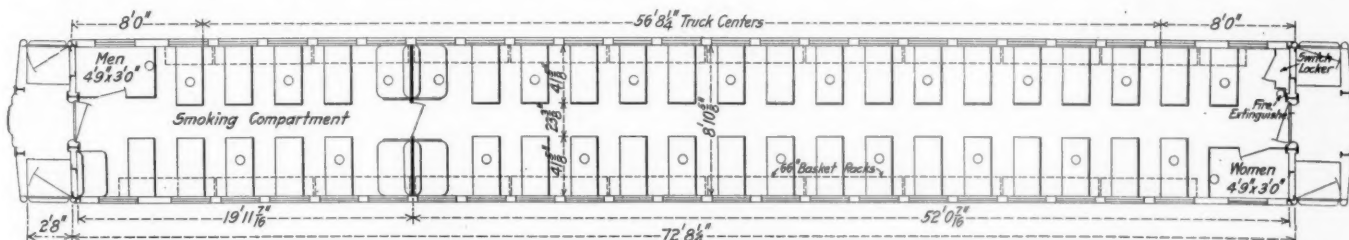


Floor Plan of D. & H. Coach with Smoking Room

found in Table I, and a comparison of the cars with others of similar type in Table II.

The principal dimensions and nearly all the details of the coaches from the two builders are the same, but a change has been made in the seating arrangement, the cars built by the

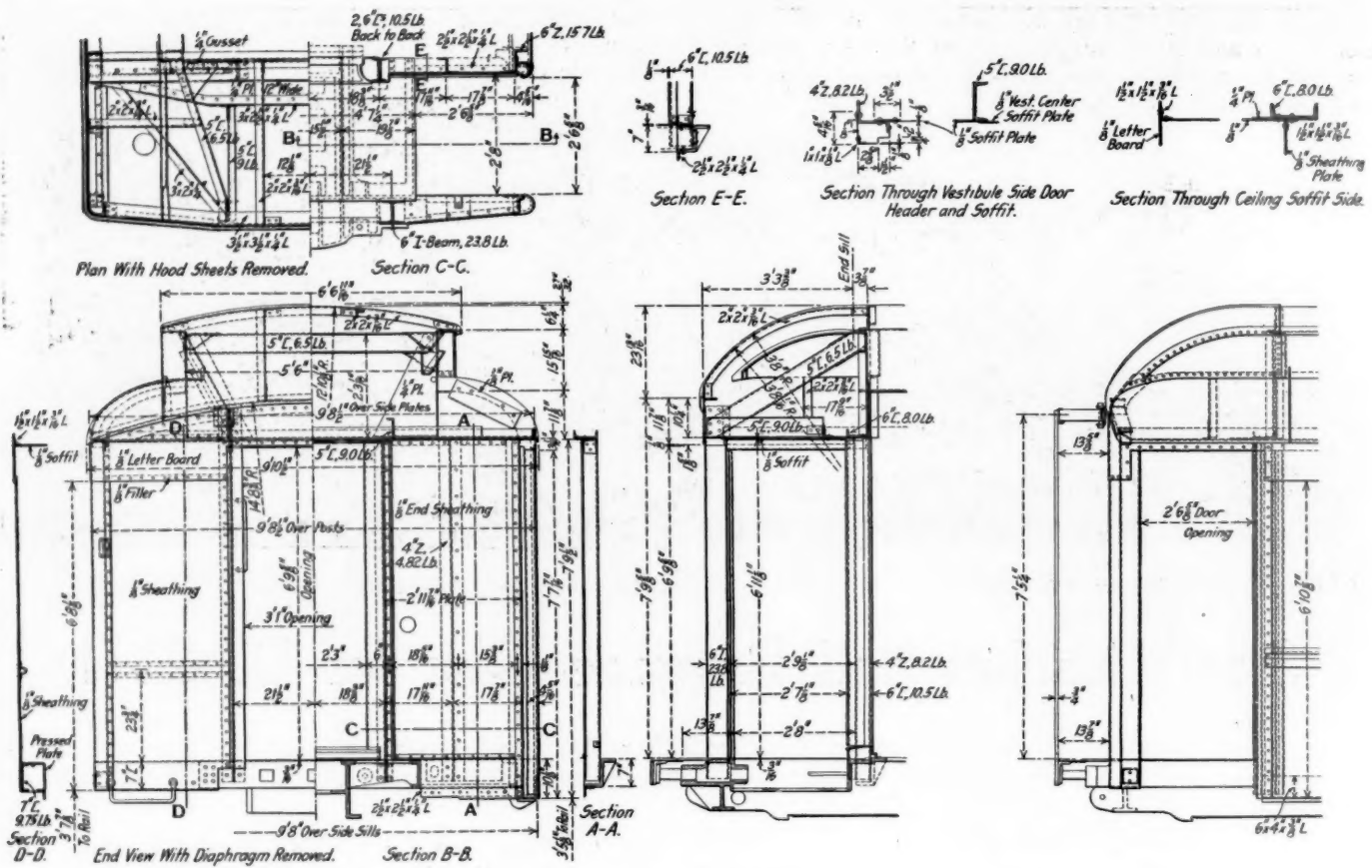
by 1/2-in. angles riveted to the outside of the web plate at the top and to both inside and outside at the bottom. The cross-bearers are built up of a cast steel section riveted to the web plates on either side, further secured by top plates 5-in. by 1/2-in. extending across the cover plates and under the angles



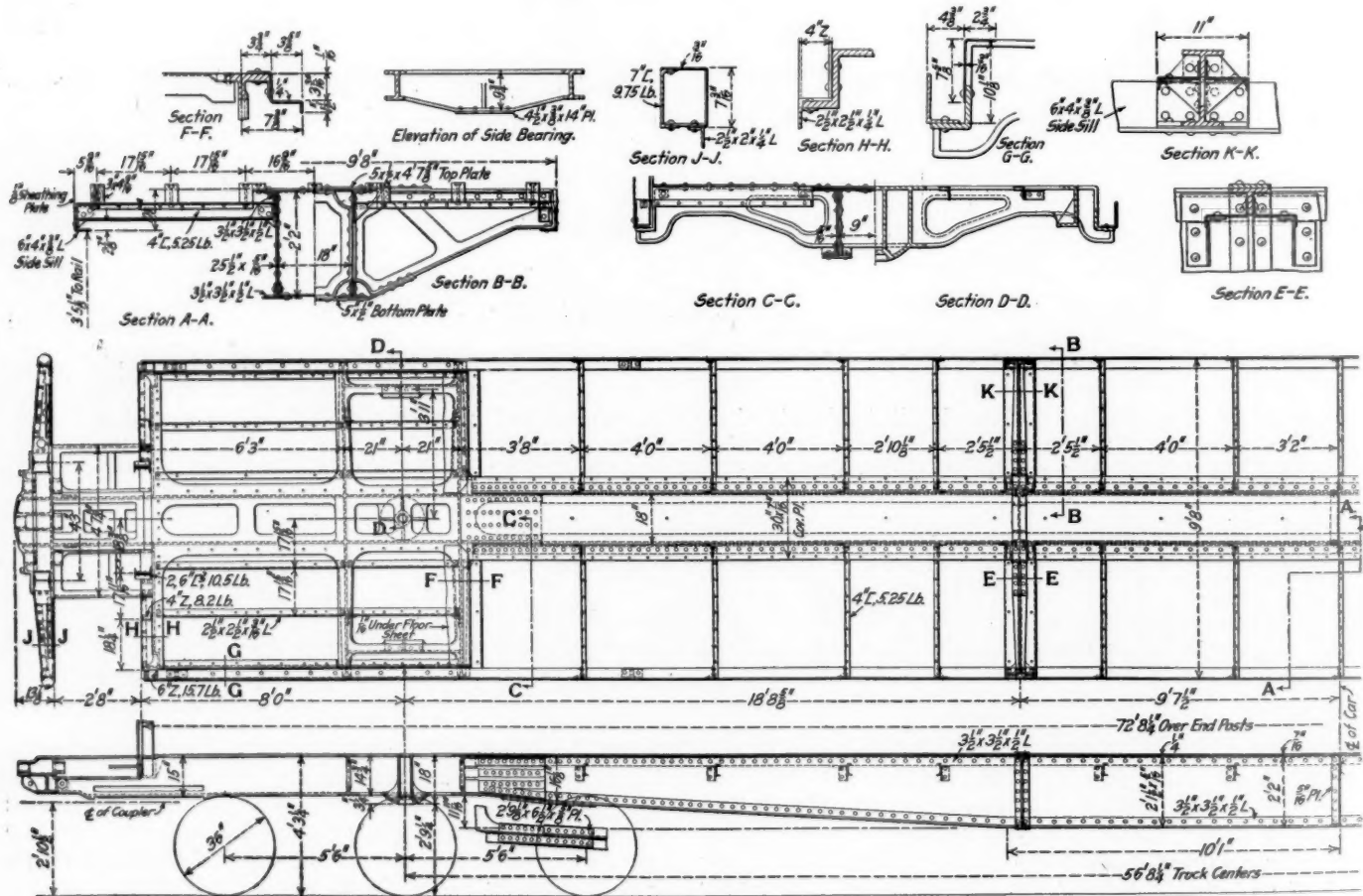
Floor Plan of D. & H. Coach with Smoking Compartment

Barney & Smith Company having a smoking room accommodating six persons and seats in the main portion of the car for 78 passengers, while one end of the cars built by the American Car & Foundry Company is partitioned off to form a smoking compartment, the seating capacity of the smoking

which form the bottom of the center sills, to which the cross-bearers on either side are riveted. The side sills are angles 6-in. by 4-in. by 3/8-in. riveted to the crossbearers and body bolsters, and the floor beams are 6-in. 8-lb. channels, riveted to 1/4-in. pressed angle brackets on the web plates and side



End Framing and Vestibule Details



Underframe of the D. & H. Coaches

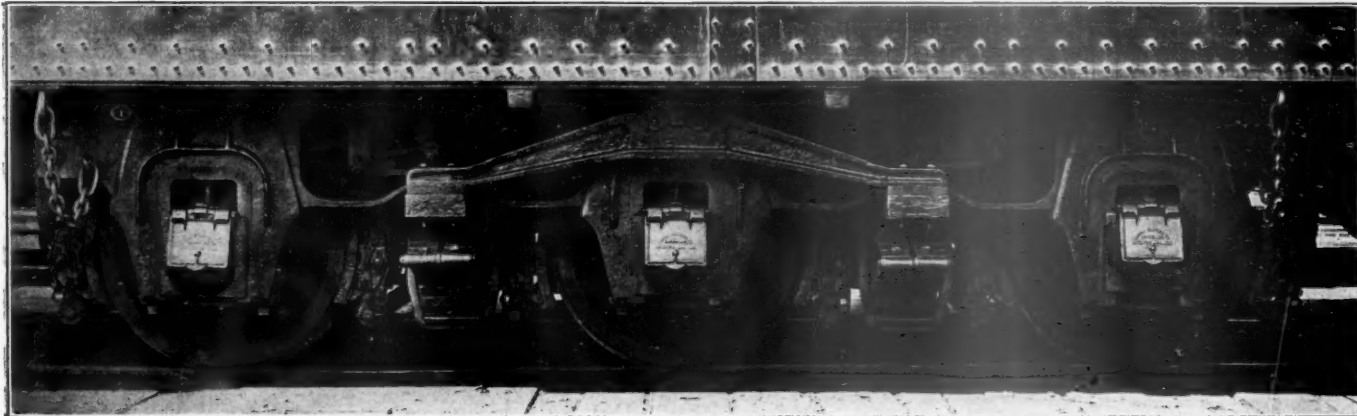
sills. In the cars built by the Barney & Smith Company, a false floor, made of 1/16-in. plate, is secured directly to the floor beams and above this the wooden floor stringers are

of the car is formed by 2½-in. by 2½-in. by 3/16-in. angles riveted to the flanges of the platform casting. The floor stringers are riveted to the false floor and supporting angles.

The side posts of the cars built by the Barney & Smith Company are of a flanged U-section, as shown in the drawings, while the American Car & Foundry Company employs two channel sections of pressed steel, with the flanges turned toward each other to form the posts. In both designs pressed sections are used to form the window casings. The end posts are built up of Z-bars and pressed steel shapes. A belt rail ½-in. by 4-in. extends the entire length of the car body,

TABLE I.—WEIGHTS AND DIMENSIONS OF NEW CARS FOR THE DELAWARE & HUDSON

Cars	Total weight, lb.	Dead weight, lb. per passenger	Seating capacity		Length inside	Truck	
			Coach	Smoker		Type	Journals
Coach	146,200	1,740	78	6	71 ft. 11½ in.	Six-wheel	5 in. by 9 in.
Coach	138,710	1,541	66	24	71 ft. 11½ in.	Six-wheel	5 in. by 9 in.
Baggage	110,440	.....	..	..	60 ft. 0 in.	Four-wheel	6 in. by 11 in.



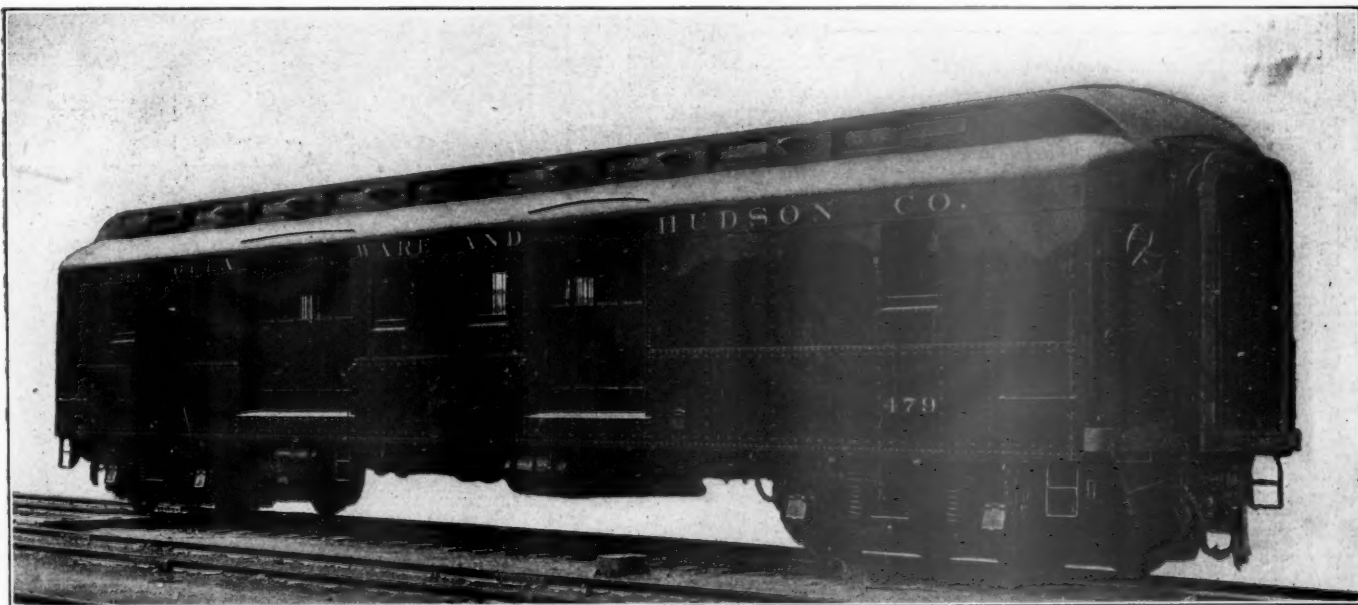
The Six-Wheel Truck

TABLE II.—COMPARATIVE DATA ON STEEL COACHES.

Railroad	Total weight, lb.	Seating capacity	Dead weight, lb. per passenger	Length over end sills	Type of truck
D. & H. Co.	146,200	84	1,740	72 ft. 8¼ in.	Six-wheel
D. & H. Co.	138,710	90	1,541	72 ft. 8¼ in.	Six-wheel
Boston & Maine	120,000	88	1,364	70 ft. 3½ in.	Four-wheel
Pennsylvania	120,000	88	1,364	70 ft.	Four-wheel
New Jersey Central	115,800	78	1,480	63 ft.	Four-wheel
New Haven	131,000	88	1,488	70 ft. 6 in.	Six-wheel
Canadian Northern	140,000	84	1,670	72 ft. 6 in.	Six-wheel
New York Central	142,000	84	1,690	70 ft.	Six-wheel

placed. The American Car & Foundry Company makes use of 3-in. by 2½-in. by ¼-in. angles, fastened to brackets

and a pressed steel belt rail stiffener extends between the side posts under the window stools. The side posts are fastened at the top to Z-bar side plates which carry the lower deck carlines, the latter being pressed steel, of channel section. Between each of the carlines is a 1½-in. by 1½-in. by 3/16-in. angle which serves as an additional support for the lower deck roof. The inner ends of the lower deck carlines and roof supports are fastened to an angle iron which, with the carlines, supports the deck posts, which are similar in section to the side posts. A pressed steel channel with unequal legs is riveted to the top of the deck posts and carries the upper deck carlines, in which the side post section is again



Baggage Car with Special Provision for Ventilation

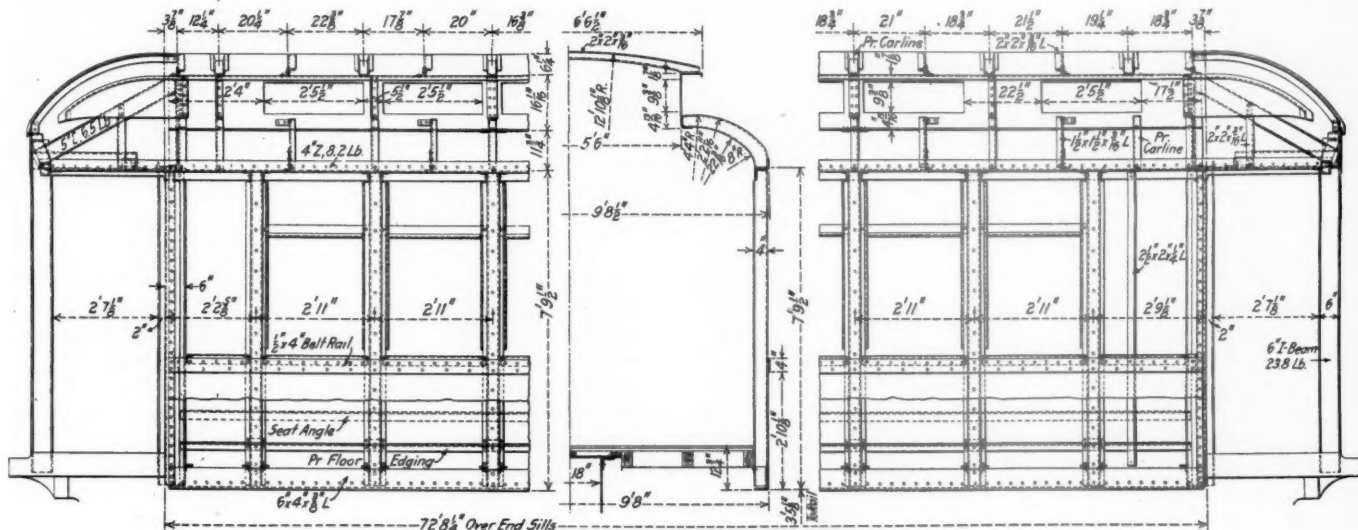
resting on the floor beams to furnish a support for the false floor at the level of the center sill cover plates. The longitudinal floor support between the body bolsters and the end

repeated. Midway between the carlines are placed 2-in. by 2-in. by 3/16-in. angle iron roof supports.

In the framing at the end of the body, structural shapes

matching the lower sides of the coach. The interior of the coaches is finished in imitation of grained mahogany, with green Agasote headlining in nine coaches and gray Agasote in nine coaches. The seats, except in the Pullman smoking room, are the Walkover type, made by the Hale & Kilburn Company, covered with "Chase" plain green plush seat covering in the coach end, and Pantasote in the smoking

direct acting steam car thermostat, while five cars have the Chicago Car Heating Company's vapor system. The Safety Car Heating & Lighting Company's underframe type electric light equipment has been applied to 18 cars, while the other six cars have Stone-Franklin underframe type electric light equipment. The coaches have the Garland exhaust ventilators, while the baggage cars are equipped with the



Side Framing of the D. & H. Coaches

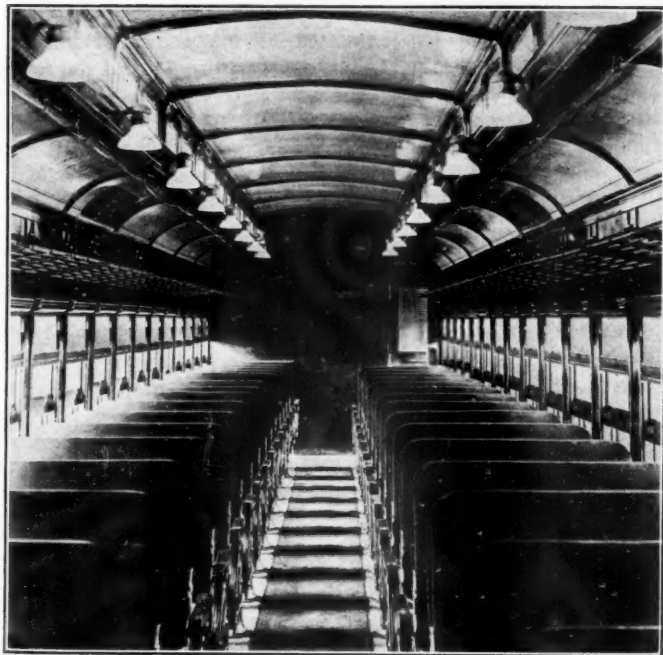
compartment. The seats in the Pullman smoker are known as the English type, covered with Spanish leather.

The baggage cars are similar in general design to the coaches, except that Z-bars have been used for the side posts, instead of pressed steel shapes. The interior finish of the baggage cars is steel, the color conforming to the require-

Standard type. The window fixtures were supplied by the O. M. Edwards Co. The draft gear on all the cars is the Miner friction, type A-3-P with Sharon quadruple shear couplers. The buffer is the Miner friction type B-10. Westinghouse type P S brake equipment is used with one 18-in. by 20-in. brake cylinder.

The coaches are carried on six-wheel Commonwealth cast steel trucks with a wheel base of 11 ft. The bolsters are carried on full elliptical springs of the usual type. The equalization system consists of semi-elliptical springs placed over the boxes and connected through short center pivoted cast steel equalizers. The wheels are 36-in. in diameter and the journals 5-in. by 9-in. The truck complete weighs 22,080 lb.

The trucks for the baggage cars are the Commonwealth Steel Company's four-wheel cast steel truck which has a wheel base of 8-ft. On these cars the wheels are 36-in. and the journals 6-in. by 11-in. The weight of the truck is 16,600 lb. Double refined iron has been specified for the equalizers on the four-wheel trucks. On both the four-wheel and the six-wheel trucks, the American Brake Company's design of vertical lever clasp brake has been used.



Interior of One of the Coaches Looking Toward the Pullman Smoker

ments of the Post Office Department. Double wood floors have been used and the insulation is 3-ply, No. 3 Linofelt. These cars have fresh air inlets opening behind the steam pipe at both sides and ends of the car.

The heating equipment in 19 of the cars is the Consolidated Car Heating Company's thermo vapor system, with

INCREASED FARES AND SCHOOL HOLIDAYS.—Lord Bessborough, chairman of the London, Brighton & South Coast, addresses the following letter to the Daily Telegraph:—"I have lately received a good number of letters from those interested in schools pointing out the great hardship which they consider will be imposed upon teachers and parents of pupils by the 50 per cent increase in the fares. Surely the obvious reply is that the number of holidays in all schools should be curtailed. A beginning might be made by knocking out the Easter holidays, at which time I think railways will be fully occupied. That time at their respective schools could be devoted to giving boys from 15 and upward a thorough initial training for whatever military duties they may be eventually called upon to perform, and, in the case of girls, a like training in one or more of the many national services now being so admirably performed by women."—*Railway Gazette, London.*

WASHINGTON CORRESPONDENCE

WASHINGTON, D. C., February 6, 1917.

I. C. C. WANTS JURISDICTION OVER CAR INTERCHANGE

Commissioner H. C. Hall of the Interstate Commerce Commission explained at a hearing before the House Committee on Interstate and Foreign Commerce on February 1 just what the commission wishes in the way of additional authority over the exchange, interchange and return of freight cars in accordance with its recommendation in its annual report to Congress. Mr. Hall made it clear that although the commission had decided it had sufficient power to issue the order of January 21 prescribing a partial code of car service rules, in its opinion it would still require a considerable grant of power from Congress to enable it to deal adequately with car shortage and car congestion. Mr. Hall said that although the commission was able to issue this order under the general powers conferred by the act, the law obviously provides no machinery for dealing with a crisis or an emergency because it requires a hearing and 30 days' notice, and the Esch bill, H. R. 20352, which was drafted by the commission, provides for giving the commission plenary power in the case of an emergency to suspend the rules and issue such directions as may be required to deal with the situation. He said the commission considered it important to have the car service rules filed as tariffs and subject to complaint just as rate tariffs are and it attached special importance to the emergency powers. The emergency provision of the Esch bill is as follows:

"Whenever the commission shall be of opinion that an emergency exists in respect of the supply or use of cars for transportation of property, the commission shall have, and it is hereby given, authority, either upon complaint or upon its own initiative without complaint, at once, and, if it so orders, without answer or other formal pleading by the interested carrier or carriers, and with or without notice, hearing, or the making or filing of a report, according as the commission may determine, to suspend the operation of any or all rules, regulations, or practices then established with respect to car service for such time during the continuance of the emergency as may be determined by the commission, and also authority to make such just and reasonable directions with respect to car service during the emergency as in its opinion will best meet the emergency and promote operation of car service in the interest of the public and to the advantage of the convenience and commerce of the people. The directions of the commission as to car service during emergency may be made through and by such agents or agencies as the commission shall designate and appoint for that purpose."

Mr. Hall said that it is beyond human foresight to formulate car service rules in advance which will exactly fit the occasions that frequently arise and that in such times it should be in the power of the commission to send a commissioner, inspectors or other representatives to places where serious conditions exist and to take such action on the ground as may be necessary, but that under ordinary circumstances the rules should not be changed except as tariffs are changed. He said that with such powers as would be conferred by the bill, the situation would not depend on the good faith of the carriers, which was shown in dealing with the congestion at the eastern ports a year ago, but which had not been shown by some of the roads during the present situation. Regarding the objection made by the railroads that the proposal would make violations of the rules subject to a penalty of \$5,000, Mr. Hall thought that the rules might be made to provide for penalties such as those now provided for in the car service rules.

A member of the House committee asked if it would not be a good thing to give the commission power to order the purchase of more cars. Mr. Hall thought that this plan

would be of doubtful propriety, at least until the inadequacy of the present supply has been demonstrated. He said many people think that there are enough cars in the country if they can be properly handled, but that nobody knows, and that there are a great many reasons for the "car shortage" other than shortage of cars. He also said in reply to a question, that it might be necessary for the commission itself to make use of embargoes and it also might go so far as to order an industry to load cars to maximum capacity under penalty of not being furnished with the cars demanded. Representatives of the State commissions also urged the increase in the power of the Interstate Commerce Commission to give it jurisdiction over car interchange.

* * *

INTERSTATE COMMERCE COMMISSION CO-OPERATES WITH STATE AUTHORITIES

In its decision to grant the petitions of the attorney general of Texas, the Railroad Commission of Texas and many shippers of the state for a reopening of the Shreveport rate case, the Interstate Commerce Commission is attempting to carry out its ideas for securing more co-operation with the state commissions in cases involving a conflict between intra-state and interstate rates and commission jurisdictions, which were outlined by Chairman Meyer of the Interstate Commerce Commission in his address before the National Association of Railway Commissioners and also in the commission's annual report to Congress. The commission points out in its report that it had made every effort to give every interested party an opportunity to take part in the case which has been pending before the commission for over four years and it, therefore, declines the petition for a vacation of its order in the case, but it points out that the Railroad Commission of Texas, which had heretofore refrained from any participation in the proceedings, now wishes to become a party and, the commission says, the desirability of co-operation with the state authorities is obvious.

The commission also calls attention to extracts from its annual report in which it pointed out that it had not reached out in any spirit of aggression to attempt to control the intra-state rates in Texas and called attention to the fact that it had no co-operation from the Texas commission. In its report to Congress the commission asked for legal authority to co-operate with state commissions in efforts to reconcile upon a single record the conflicts between the state and interstate rates without abdication of any federal authority to finally control questions affecting interstate and foreign commerce. While the contest between the advocates of state regulation and those who are attempting to bring about exclusive federal regulation of rates is being waged, the Interstate Commerce Commission is, therefore, occupying a middle ground and attempting to do what it can to reconcile the present conflict of authority.

Another opportunity for co-operation between a state commission and the interstate commission was afforded by a case before the Louisiana Railroad Commission on the proposal of the Louisiana lines to advance their state rates to remove discriminations complained of by cities in Mississippi. At a hearing begun on January 17 Examiner George S. Gibson of the Interstate Commerce Commission was present on the invitation of the Louisiana commissioners and was given the privilege of taking part in the proceedings. Examiner Gibson had previously been taking testimony in a case brought before the Interstate Commerce Commission by the city of Natchez, Miss., involving the same Louisiana rates in their relation to interstate rate adjustment and in appearing before the Louisiana commission he announced that the interstate commission had sent him to do whatever might be in his power in developing the facts necessary for a proper determination of the case in connection with the cases pending before the interstate commission. He said that the Interstate

Commerce Commission would probably have formally intervened in the proceedings, had the power to do so been conferred on the commission by law, but that under the law it could only take part in the state case in an informal manner.

A NEW ADAMSON BILL REPORTED

A bill designed to supplement the Adamson law by providing for such emergencies resulting from wage controversies as that encountered last summer and which may arise again in the near future, but without provision for a compulsory postponement of strikes pending an investigation, has at last been agreed on by the House Committee on Interstate and Foreign Commerce and was introduced into the House by Chairman Adamson on Monday in a form in which it is believed it may pass the House and be referred to the Senate. It also authorizes the President to take over railroads for military purposes. The bill was reported from the committee on Tuesday.

The Senate committee, which has been unable to agree on a bill, has held no meetings for several days on account of the illness of Chairman Newlands, but it seems to be generally understood that the administration has recognized the impossibility of enacting a law to make strikes illegal pending an investigation and that the Senate will await action on the House bill.

The new Adamson bill, H.R. 20752, presents many modifications from the bill recently introduced by Mr. Adamson. It amends the Newlands railroad arbitration law by providing that whenever a controversy shall arise between any employer and his or its employees which cannot be settled through mediation and conciliation or by arbitration in the manner provided in the act, the President shall be notified by the Board of Mediation and Conciliation and shall thereupon add to the board four members, two from representatives of employees and two from representatives of railroad officials, and to the board as thus temporarily constituted the controversy shall be immediately referred. The board shall forthwith proceed to ascertain the facts and circumstances of the controversy and within three months submit to the President a report of its findings of fact and a recommendation for a settlement, which shall be published. The board may hold hearings and shall have power to require by subpoena the attendance and testimony of witnesses and the production of papers, etc. There is no provision for giving effect to the findings of the board, but publicity and the representation of the public by the Board of Mediation and Conciliation are relied upon to give force to its recommendations.

Section 2 contains the important provision that "any person or persons who shall knowingly and willfully obstruct or retard, or aid in obstructing or retarding, the passage of the United States mail, or any carriage, horse, driver or carrier carrying the same, or the orderly conduct or movement in the United States of interstate or foreign commerce, or the orderly makeup or movement or disposition of any train, or the movement or disposition of any locomotive, car or other vehicle, on any railroad in the United States engaged in interstate or foreign commerce, shall be deemed guilty of a misdemeanor and for every such offense shall be punishable by a fine of not exceeding \$100, or by imprisonment for not exceeding six months, or by both such fine and imprisonment."

The President of the United States is authorized, whenever in his judgment the public interest requires, to employ the armed forces of the United States to prevent any obstruction or retardation of the passage of the mail, or of the orderly conduct or movement of interstate or foreign commerce, or of any train, locomotive, car or other vehicle. While this does not prohibit strikes, it is believed that it provides an effective prohibition against some of the means occasionally used to make strikes effective.

PRESIDENT MAY TAKE RAILROADS FOR MILITARY PURPOSES

The present state of the international relations of the country gives added interest to the provision in the bill authorizing the President to take over and operate railroads in time of war, which was recommended by the President in his messages to Congress on the labor situation and which has been included in most of the bills that have been considered in that connection. Section 8 of the Adamson bill provides:

"That in case of actual or threatened war, insurrection, or invasion, or any emergency requiring the transportation of troops, military equipment, and supplies of the United States, the President of the United States, when in his judgment the public safety may require, is hereby authorized to take possession in whole or in part of any and all telephone and telegraph lines in the United States, their offices and appurtenances; to take possession in whole or in part of any or all railroad lines in the United States, their rolling stock, offices, shops, buildings, and all their appendages and appurtenances; to prescribe rules and regulations for the holding, using, and maintaining of the aforesaid railroad, telephone, and telegraph lines, or that portion of the same of which possession may be taken, in the manner most conducive to the safety and welfare of the United States; to draft into the military service of the United States and to place under military control any or all of the officers, agents, and employees of the railroad, telephone, or telegraph companies whose lines are so taken into possession; and said officer, agents, and employees shall be thenceforth considered as members of the Military Establishment of the United States, subject to all the restrictions imposed by the rules and articles of war."

The draft is to be accomplished upon proclamation by the President, declaring the occasion therefor and directing officers of the Military Establishment to prepare a roster or rosters of the individual officers, agents and employees so to be drafted. Upon the making of such rosters, notice is to be given to each person so enrolled of the place where and the time when such person shall appear and enter upon his service, and penalties are provided for failure to comply promptly.

The bill also provides that the communication of intelligence by telephone and telegraph lines and the transportation of troops, equipment, military property and stores shall be conducted under the control and supervision of such officers as the President may designate. Whenever, in his opinion, the public safety no longer requires the continued possession of such lines, they shall be restored to the owners and the damages suffered or the compensation to which the companies may be entitled shall be assessed and determined by the Interstate Commerce Commission, due regard being had to the terms of any land grants or contracts existing between any such company and the United States. Officers, agents or employees who may be drafted shall receive for their services such compensation as they were theretofore accustomed to receive for similar service.

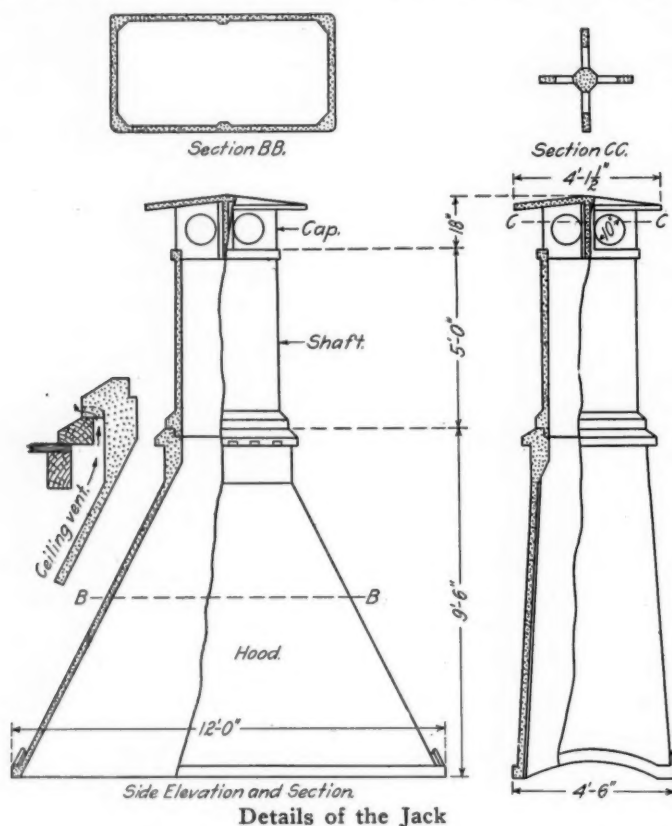
Persons who shall refuse to surrender railroad, telephone or telegraph property to the United States upon order of the President, or who shall resist or interfere with the use of the property so taken, or who shall injure or destroy or attempt to injure or destroy the property while in the possession of the United States shall be fined not more than \$10,000 or imprisoned not more than five years or both. These provisions are similar to those in the tentative Newlands bill pending before the Senate committee.

NO DECISION ON ADAMSON LAW

The Supreme Court of the United States on February 5 took a recess until March 5, 1917, without rendering a decision in the case involving the constitutionality of the Adamson eight-hour law.

A REINFORCED CONCRETE SMOKE JACK

The severity of the service to which smoke jacks are subjected is well known to railway men, a fact which lends considerable interest to the successful use of reinforced concrete as a structural material in this field. A smoke jack made of this material has been in use about a year in an Illinois Central roundhouse at Twenty-seventh street, Chicago, with good results. As shown in the drawing the walls of the jack are relatively thin for concrete construction and in consequence the weight compares very favorably with the other common types of smoke jack. Because of this these jacks may be installed readily in roundhouses without need for any alterations in the roof construction, while the cost is said to be less than that of most corrosion resisting jacks now in use. The jack is made in three parts, viz: hood, shaft and cap. Each is made up of plates of concrete, only a little more than an inch thick, reinforced at the corners with fillets. The hood is stiffened by an additional rib in the middle of each of the two flat sides and by an enlargement around the bottom



that serves the further purpose of a drip groove. The reinforcement consists of wire mesh supplemented by 3/8-in. diameter bars. Ordinarily the three parts are each cast in a single piece but it is possible to construct them in the form of separate slabs that can be assembled at the roundhouse.

The Illinois Central jack has a 12-ft. hood and the total weight is 4,790 lb. The hood is the heaviest unit, weighing 3,700 lb. and is supported on a ledge provided on the collar or neck of the top, designed to lap over the top of the timbers in the roof frame. The shaft and cap are carried by the hood. The supporting collar at the top of the hood is notched at intervals around its circumference as indicated in the sketch to afford vents through which gases above the level of the hood inlet may escape to the outer air. The cap is of interesting design. To obtain the maximum opening to the air with a minimum of obstruction, while securing a rigid and stable construction, the walls were arranged in the form of a cross carried on supporting points in the center of each side of the shaft.

The use of steel embedded in concrete of such limited

thickness, in a service which exposes it to gases having well known corrosive powers, implies the use of a concrete as impervious as it is possible to make it. This is accomplished by the use of proportions giving a maximum density combined with a special surface treatment. The interior of the jack is thoroughly trowelled and subjected to a special waterproofing process. The year's test in the Illinois Central roundhouse is said to have thoroughly demonstrated the effectiveness of these methods and the railroad has ordered jacks of the same type for use in a roundhouse at Louisville, Ky. These jacks are patented and are manufactured by the C. F. Massey Company, Chicago.

INSTRUCTIONS TO B. & O. PASSENGER CONDUCTORS*

Further to improve and develop its passenger service, the Baltimore & Ohio Railroad in recent years has spent large sums of money in the betterment of its track and for the purchase of new and attractive equipment. The full benefit will not be derived from these expenditures unless the individual passenger conductor so performs his duties as to make, so far as possible, the trip of the passenger agreeable and comfortable.

The duties of passenger conductors and trainmen are responsible and delicate, demanding good judgment, tact and courtesy at all times. . . . Safety is of first importance. . . . Should accident or delay occur to a train, conductors will inform passengers of the cause, taking special care not to unnecessarily alarm them. As nearly as possible, the length of delay will be given for the convenience of those anxious to make certain connections.

Conductors and trainmen will observe very carefully baggage and packages placed in racks to see that there is no danger of their falling; also that aisles are free of obstructions. . . . If the train is not handled smoothly, or the wheels are caused to slide in making a stop, the conductor will notify the engineer as soon as practicable, and when the train is running at a higher rate of speed than allowed, he will notify the engineer by the proper communicating signals. . . . Conductors will see that coaches are clean and neat, well ventilated, in cold weather properly heated, and at night properly lighted. They should also see that unoccupied day-coach seats face in the proper direction, shades are at a uniform height, windows closed through tunnels, and the interior arrangement kept in an orderly and attractive condition. They will see that the Pullman car service is properly conducted by frequent inspections and that quiet is maintained at night in and about sleeping cars. In passing through dining cars, conductors and trainmen will remove their hats.

Inquiries will be answered correctly and pleasantly, regardless of how unnecessary they may seem, and when addressed by women passengers, conductors and trainmen will raise their hats as a mark of courtesy. They will protect passengers from rudeness, threatened violence, abusive or obscene language, maintaining their self-control and being careful to have no unnecessary force used. . . .

Conductors will keep thoroughly informed as to connections, time of trains and routes, and, when examining tickets, will notify passengers where they are to change cars.

The names of stations will be clearly announced in all the coaches in advance of the stop. Trainmen will be on the alert to signal the engineer for flag stops at the direction of the conductor when the latter's immediate duties require all his attention.

On arrival at terminals, conductors and trainmen will remain on duty in uniform to render assistance to passengers leaving train; and outgoing crews will assist passengers boarding trains.

* Extracts from a circular issued recently by J. M. Davis, vice-president. See editorial column.

Hearing on Valuation Protests Concluded

Extended Arguments Presented Before the Interstate Commerce Commission on Depreciation and Land Values

IF the principles adopted for the determination of depreciation by the division of valuation of the Interstate Commerce Commission on the properties of the Atlanta, Birmingham & Atlantic and the Texas Midland are sustained, they will result in writing off 20 per cent of the investment in the railroads of this country and involve a loss of from two to five billion dollars. W. G. Brantley, counsel for the southern group, Presidents' Conference Committee on Valuation, placed this interpretation on the position taken by the division of valuation in the hearing conducted before the Commission last week on the protests on the tentative reports on the properties of the Atlanta, Birmingham & Atlantic and the Texas Midland. Pierce Butler, counsel for the western group of railroads also stated that similar confirmation of the action of the division of valuation with respect to lands would result in a further loss of from one to three billion dollars. This hearing, which was opened on Monday, January 29, did not conclude until the following Saturday. The proceedings of the first three days were given in the issue of last week.

Almost all of Thursday was devoted to the manner of accounting for depreciation. The roads took exception to the action of the division of valuation in deducting depreciation by the straight line method on the basis of the ratio the service life consumed bore to the total service life of each unit entering into the construction of a railway. The roads contended that no depreciation should be deducted on a property which is properly maintained as its service life is indefinite and that depreciation should only be charged for neglect or deferred maintenance. W. G. Brantley emphasized the fact that the depreciation in question has accrued in the past and that a road will have no chance to recoup for this loss already incurred by increasing rates. Properties such as locomotives are acquired for service and no depreciation should be charged so long as they render this full service. When worn out, they may be replaced in kind by charge to operation only, without the investment of any new money or any charge to capital account. Director Prouty also emphasized the importance of the subject of depreciation and stated that its determination involves more difficulties than any other problem in valuation work. He agreed with the representatives of the carriers that there is a point in the maintenance of an established property where renewals equal depreciation and no further deterioration ensues. He contended that it was the right of the Atlanta, Birmingham & Atlantic to charge rates sufficient to compensate it for this depreciation.

Commissioner Clements asked whether the fear of confiscation expressed by the roads was not founded on the supposition that some one will make an unfair use of the facts presented by the commission, and the reply was made that such fears were based on statements made by representatives of the states. He then asked where confiscation began and Pierce Butler replied, "With the states."

Thos. W. Hulme asked the commission to instruct the division of valuation to ascertain and report (1) what portion of the deterioration that they have reported accrued during the construction and development periods; (2) the extent to which the standards of maintenance on the roads under consideration have departed from the appropriate standards, and (3) the manner of ascertaining the life tables used in determining depreciation and the extent to which obsolescence and inadequacy affected these figures. Solicitor Farrell and Director Prouty objected to this request and Chairman Meyer stated the commission would take it under consideration.

Late on Thursday afternoon Pierce Butler emphasized the need of the commission having before it for consideration more important roads before passing on a number of the more important questions such as "other values and elements of value." He argued that the knowledge of the facts of this nature as they exist on other and larger roads would assist the commission in arriving at its decision with reference to the Texas Midland. Director Prouty agreed with this position.

LAND VALUES

In arriving at the present value of land, the Government forces ascertain the value of adjacent similar or adjoining lands and apply that value or a value of which that is the basis to the area owned by the carrier. The valuation act requires the Government to ascertain and report separately the original and present cost of condemnation and damages or of purchase in excess of such original cost or present value. The division of valuation shows insofar as it can the cost of condemnation and damages or of purchase as a part of the original cost of the lands, but it does not attempt to show the present cost of condemnation and damages or of purchase in excess of present value; nor does it show the cost of reproducing the right of way or allow any interest in the cost of these lands from the time of their acquisition until the road is placed in operation.

W. G. Brantley contended that the cost of acquisition of the land at the time of this dedication to public service was only one of the four costs required by the law and that the division of valuation was required to report the cost of this land to the carrier under valuation, the cost of reproduction and the present value of the land. Also no attempt was made to determine the cost of acquisition or severance damages. He quoted at length from the Minnesota Rate Case decision to show that while the court disapproved the methods applied to determine these figures it approved the determination of the cost of reproduction of land, defining this as the amount the carrier would have to pay for this land in condemnation. This involves consideration of any value adhering to a tract of land because of its particular location or condition. Mr. Brantley cited one instance where the A. B. & A. found it necessary to pay for and remove over 100 buildings from a certain tract of land, none of the expense of which was allowed in the tentative valuation. He claimed that to omit severance damages and cost of acquisition is to resort to speculation.

Pierce Butler emphasized particularly the necessity for a complete inventory of the right of way continuously including crossings of streams, streets, etc. While the inclusion of these items does not mean that the roads claim ownership in them, he insisted that the inventory should include all property used by reason of license or absolute ownership in accordance with his interpretation of the requirements of the law.

Solicitor Farrell outlined the views of the division of valuation regarding land values, saying that nothing had been added to the value of adjacent land in appraising the railway right of way because he interpreted the decision of the Supreme Court in the Minnesota rate case to rule that it was improper to do so in determining present value. He said the Supreme Court had held that an increment in the value of railway right of way could not be determined by any criterion and must rest on a mere estimate involving the effect of rates when rates are in dispute. He also said that the cost to the

railroads of acquiring land did not affect the present value of the land but is included in the report as to the original cost. He said that the division had nothing to do with the question as to whether original cost or present value should be taken as the basis for railway earnings, but he thought that if the people should be willing to protect the carriers in their original investment in case it were greater than the present value they would also consider that a railroad must forego any gain resulting from the increment in value.

A. E. Helm, counsel for the Kansas Public Utilities Commission, discussed the question of land values on behalf of the state commissions. He analyzed the act section by section in support of his contention that land should be treated by itself and separately from other railway property, contending that there was no duty imposed on the commission to include land in the cost of reproduction new. Mr. Helm argued that there is no such thing as a reproduction value of land, that land cannot be reproduced and also that it is not depreciable; that Congress, in referring to cost of reproduction new and less depreciation, referred only to the construction of a railroad on the land. Mr. Helm also contended that what Congress wanted reported was not the lands themselves, but the cost of the lands, and that it did not intend to require a report of lands that did not cost anything. Commissioner Hall asked whether leaseholds, trackage rights and easements should be included. Mr. Helm thought the proper method would be to report them, but to include any value that could be attached to them under the head of "other values." C. A. Prouty, director of valuation, said that in such cases the land would be included in the report as to the owning road. Mr. Helm also argued that there was no limitation upon the commission as to how it should ascertain the original cost, contending that where the exact cost could not be ascertained from the records, the commission should estimate it from the best available evidence.

Mr. Helm contended strongly that Congress had no idea of taking into account the present value of lands other than those for which money was paid and that land grants represented public interest in the public highway which cost the railroads nothing and should not be included in any compilation that might be used as a basis for rate making or for capitalization. He insisted that a present value could not be assigned to a public highway and that Congress had purposely framed the law so that donations and grants could be excluded.

C. E. Elmquist of the Minnesota commission made a series of objections to the position taken by the division of valuation in determining the cost of reproduction new, on the ground that the decision of the Supreme Court in the Minnesota rate case had removed the assumption that a railway should be considered as non-existent in calculating the cost of reproducing it. He insisted that this decision required the ascertainment merely of the value of the various parts of a railway in place, because to assume that the railway was non-existent when everything else was in its present condition would be an untenable fiction. On this theory he objected to all items which have been included by the valuation division based on obstacles not now existing or on the cost of transportation from the nearest railway, etc. Among the items objected to were the location engineering, altering the course of streams, shrinkage, subsidence and hidden quantities, temporary trestles, team hauling for bridges, trestles and culverts, wastage and loss of ties, inspection and handling of materials and supplies, shrinkage of ballast, breaking in of locomotives, and organization expenses. Commissioner Hall asked if there was no element of fiction in assuming the reproduction of a railroad under such circumstances and without such expenses.

Glen E. Plumb then made a statement to the commission on behalf of the four brotherhoods of train service employees and asked permission to elaborate his views in a brief. He

pointed out the interest of the employees in the operation of railways both as employees and as members of the public and urged the importance of a definite ascertainment of the property rights of the railways and of the proper return to capital which, he said, becomes an important unascertainable point in every wage controversy because capital demands all the balance of earnings over expenses and claims that wages cannot be increased without an increase in rates. He represented the interest of the employees in this question by saying that their wages, if capitalized at four per cent, would represent an investment of thirty billion dollars or greater than the total capitalization of the railways. He said that the claims of the railways in this proceeding may be clearly and succinctly stated by saying that they claim everything, but that he did not find so clear a statement of the public interest.

Pierce Butler interrupted by saying that they claim that all the property of the railways is the property of the owners no matter in what manner acquired. Mr. Plumb's statement consisted mainly of a contradiction of this claim. He insisted that the property of the railways was devoted to public use when it was acquired by the railway because railways are public highways and are but the agents of the Government and that the interest of the stock and bondholders is limited by their charters. He denied that property acquired by right of eminent domain for public use can be claimed as private property and said that even title to property acquired in fee by a deed is restricted by the charter. Mr. Plumb said that under the common law and the constitutions of many states the earnings of the railways are limited to a reasonable return on the actual investment and that after the present value of all the property has been ascertained the actual investment of the owners should be subtracted and the remaining value represents the public interest.

W. G. Brantley, counsel for the southern group of railways, replied to this briefly, saying that if Congress had heard Mr. Plumb's argument it might not have passed the valuation act, but that until the act is repealed it must be assumed that when Congress directed the commission to ascertain and report the cost and value of the property of the carriers it recognized the fact that the carriers owned the property.

When the hearing was adjourned on Saturday, it was tentatively arranged that representatives of the carriers and of the state commissions should arrange with the division of valuation for the presentation of testimony on certain questions before an examiner some time before the hearing set for March 19 on the cases of the Kansas City Southern and the New Orleans, Texas & Mexico and the testimony on certain other points would be presented at that time. A motion presented on behalf of the New Orleans, Texas & Mexico that the commission should not issue a final valuation of this property until it had made a report on the property of subsidiary companies in Texas covered by the capitalization of the parent company was taken under advisement with the understanding that the record in the N. O. T. & M. case is to be completed, but that it may not be made final until after the other property has been valued.

THE SWISS RAILROAD SYSTEM.—The basis of the Swiss railroad system is the cross formed by the line running from the Lake of Geneva to Lake Constance and the transverse line from and to the Rhine, Basel-Lucerne, and Basel-Berne. The normal-gage railroad system can, in general, be considered as complete; with the exception of a line to the eastern Alps, no important link is missing. The traffic in the west is cared for by the Simplon and Lötschberg lines, but Geneva desires direct connection with Paris by a tunnel through the Faucille. The Gotthard line serves the central traffic and that of a great part of eastern Switzerland. The traffic from east to west is cared for in the north by the Rhine line from Chur-Basel to Delle. The central part of the country has the long Romanshorn and Rorschach-Geneva line.

Lackawanna Terminal Improvements at Buffalo

Construction of a Two Level Station That Serves Both
Rail and Lake Carriers. Freight Tracks Rearranged



The Water Front View of the New Station

THE new Delaware, Lackawanna & Western passenger station at Buffalo, which involved an outlay of approximately \$3,000,000 for the terminal properties and buildings, was put in service on February 1. The terminal was built as a two level, stub-end station with facilities for lake boat traffic on the first or ground floor and with rail facilities on the second floor which will be used by the New York, Chicago & St. Louis in addition to the Lackawanna. The boat facilities will be utilized by the Detroit and Cleveland and the Cleveland and Buffalo Navigation companies.

The old facilities of the Lackawanna which are now replaced were used by this road alone and were obsolete and inadequate. The station building was an old three-story brick structure which was converted into a passenger station in 1893. It was located at the corner of Main and Perry streets, both of which are important thoroughfares. The first floor was entirely given over to waiting room and ticket facilities, while the second and third floors were occupied by division offices. The baggage room was detached from the main building with which it was connected by a covered platform. Fourteen passenger trains arrived and departed from this station daily.

The station was served by two through station tracks at the level of the waiting room floor. As these tracks were also used for freight traffic and served the storage yard for export coal, which is located beyond the station on the harbor front, there was much congestion in their operation.

THE NEW FACILITIES

The new passenger facilities are located between Ohio street and the Buffalo river with the station fronting on Main street, the principal thoroughfare of the city, and extending back 1,700 ft. along the river to Michigan street. To acquire and utilize this site necessitated the purchase by the railroad of a large area of river front property as well as an extensive area north of Ohio street, the relocation of Ohio street and the closing of the river front ends of various streets within the terminal limits.

The terminal agreement between the city and the Lackawanna provided for this relocation of Ohio street on property furnished by the railroad in return for which the old location of Ohio street and the river front ends of the various streets in the terminal area were deeded to the railroad.

By this interchange of land it became possible to construct the terminal layout entirely on railroad property and to avoid all occupancy of streets. As a further consideration, the railroad constructed a new fire-boat slip, near Michigan street, for the city in exchange for the site of the old slip.

The building of the new terminal without interfering with traffic presented a complicated problem. The old right of way was confined to Ohio street, the north line of which was occupied solidly by business blocks. As the new station occupies all the property between Ohio street and the river, extending as well into the old location of Ohio street, there was very little room for temporary tracks. The condition was met by operating the entrance into the old station as a single track. The resulting congestion was partially relieved by revising the time table and changing slightly the time of arrival and departure of trains from the terminal to avoid meeting points within the terminal district.

The building of the new terminal with the track facilities at high level created a second problem. The main tracks had been elevated previously from a point approximately three miles east of the station as far west as Michigan street, from which point they descended on a two per cent grade to the street level to serve the old station and the freight yard. In the new layout the elevation is continued to the west line of Main street. To serve the lake freight house yard a freight track is carried down from the elevation at Main street on a 1.69 per cent grade to the yard level at Commercial street, requiring 800 ft. of reinforced concrete trestle and 300 ft. of embankment. A second incline track to serve the Elk street yard and local freight house yard descends on a 2.69 per cent grade from the high level at Michigan street to the elevation of the street at Mississippi street. To separate the tracks on different levels at this point 1,635 ft. of retaining wall was necessary. More than 8,000 cu. yds. of concrete will be

required in building these walls; all of which are of the gravity type.

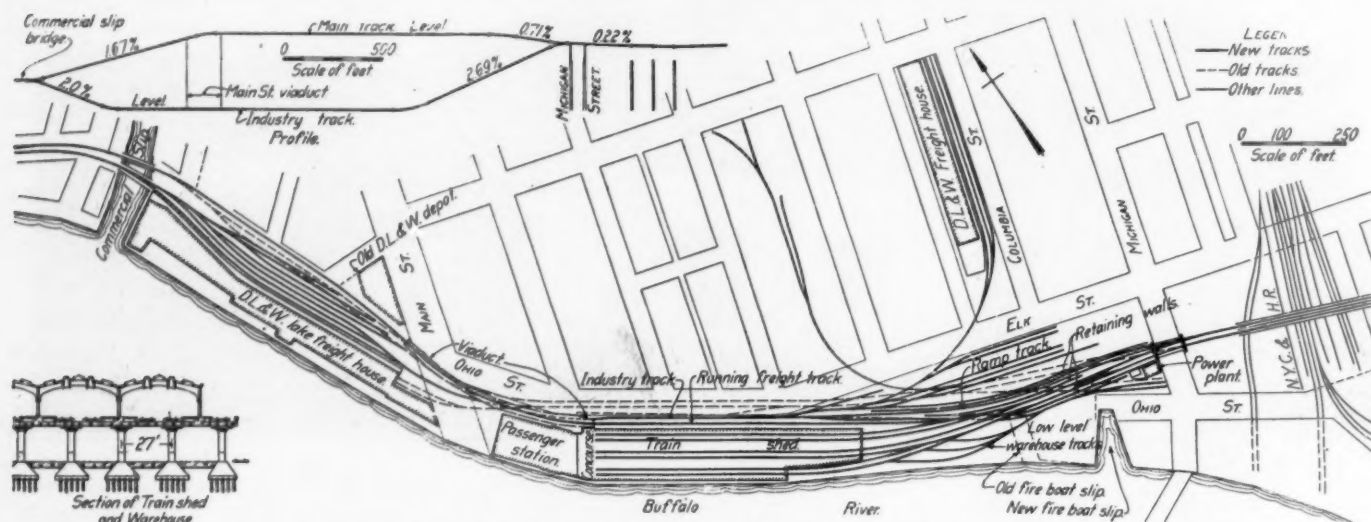
In planning the new layout no facilities for the storage of equipment were necessary as all locomotives and cars are handled at East Buffalo, about five miles east of the terminal station. All through cars for western connections are handled at junction points east of the station.

THE PASSENGER STATION

The station is located on Main street between Ohio street and the Buffalo river with a frontage on each. It is a four-

level. Pedestrians enter this lobby from Ohio street through a vestibuled entrance and the ticket lobby. On the Ohio street front and to the right of the ticket lobby is the ticket office where transportation for both rail and lake traffic is sold. To the left of the ticket lobby are the toilet rooms and the passenger elevator.

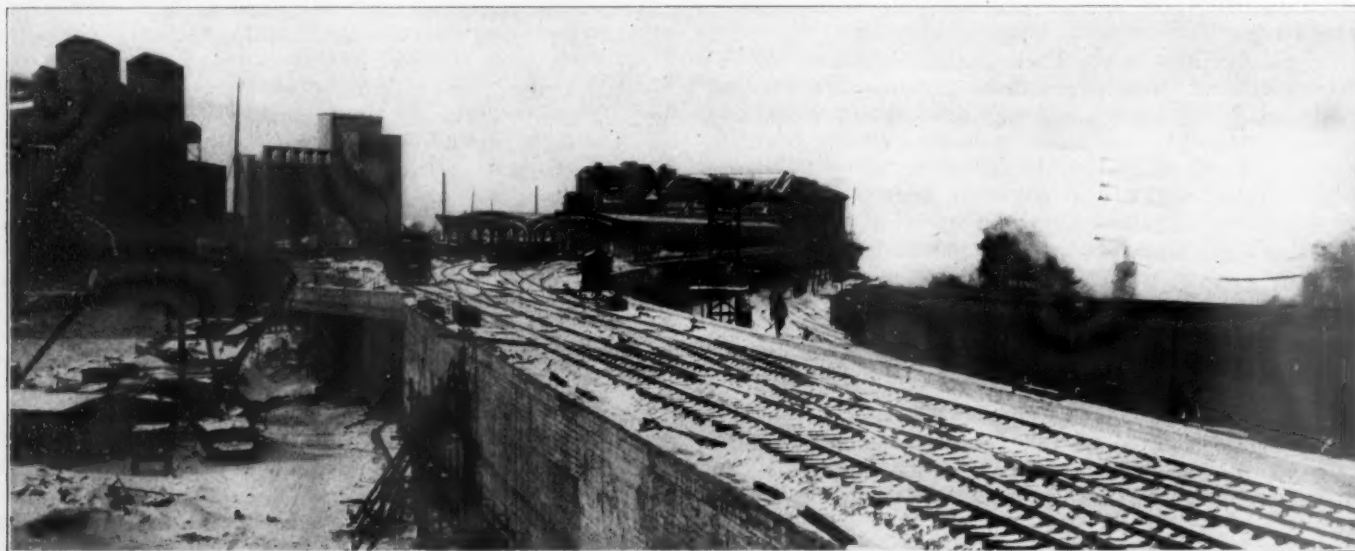
A carriage entrance is provided from both Main and Ohio streets through arched driveways. An exit from the lobby to the wharf and boats is located on the river side. On the east of the lobby are the two grand staircases leading to the second floor, where the main waiting room for trains



General Layout Plan Showing the Terminal District

story, steel frame structure with brick walls carried on a granite base extending to the second floor level. The building is supported on foundation piers carried on wooden piles driven to rock at an elevation of 40 ft. below the street grade. The building is irregular in shape to best utilize

is located. The portion of the lobby between the staircases is equipped with seats and is used as a waiting room for boat passengers. A parcel check room, a drinking fountain and telephone facilities are also provided in the lobby. A mezzanine floor around two sides provides a ticket storage



General View of the Terminal Layout

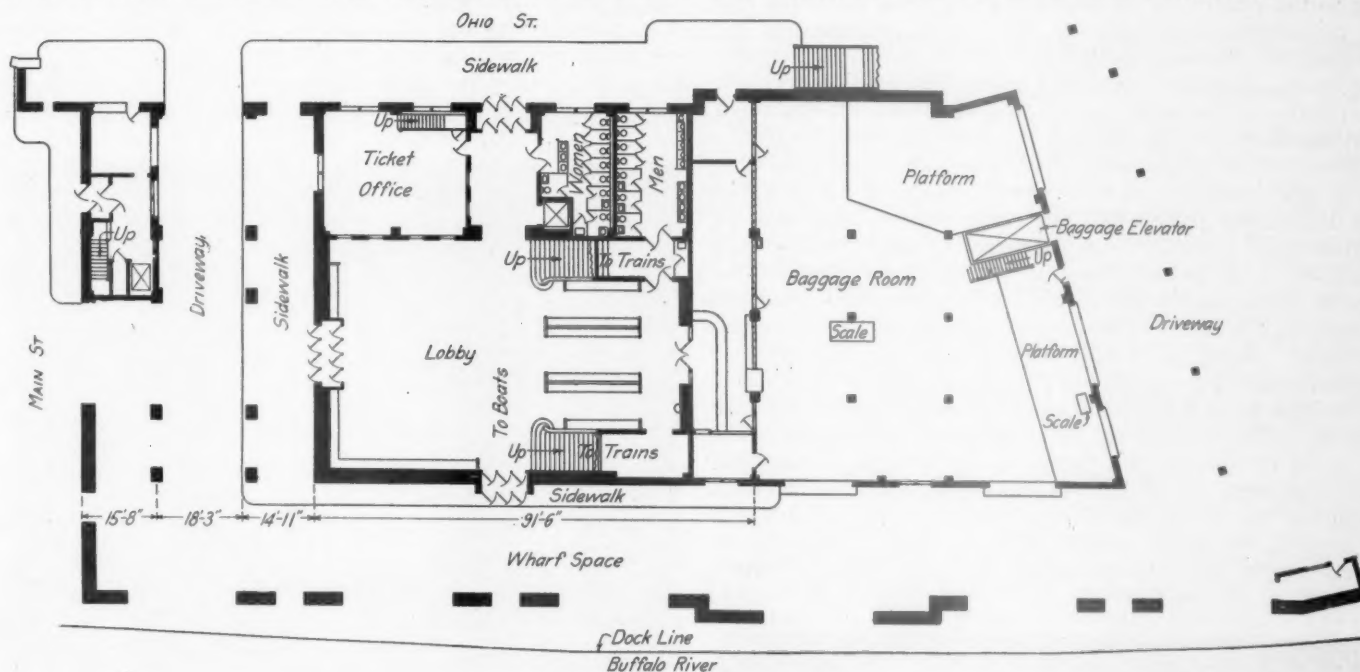
the site. It has a frontage of 106 ft. on Main street and extends back 225 ft. along the river.

To meet the requirements of the railways and to provide facilities for the boat traffic, the first or ground floor is arranged in an unusual manner. The main lobby, 51 ft. by 75 ft. in area and built in the shape of a court, occupies the central portion and extends upward to the third floor

room and a waiting room for emigrants. Toilet facilities are also located on this floor. Light is admitted to the lobby and the mezzanine floor by skylights in the roof and the ceiling. Artificial lighting is given a semblance of natural light by placing the lamps between the roof and the ceiling and transmitting the light through the ceiling skylights. Lights are also provided over the seats.

To the east of the lobby is located the baggage room, where baggage for both lake and rail traffic is handled. An elevator is provided to transfer baggage to the track level, the upper entrance being in the concourse from which

The smoking room and toilet facilities for men open off the waiting room on the river side. The station master's office, baggage lift, parcel room, news stand, passage way to the concourse and the lunch room occupy the irregular

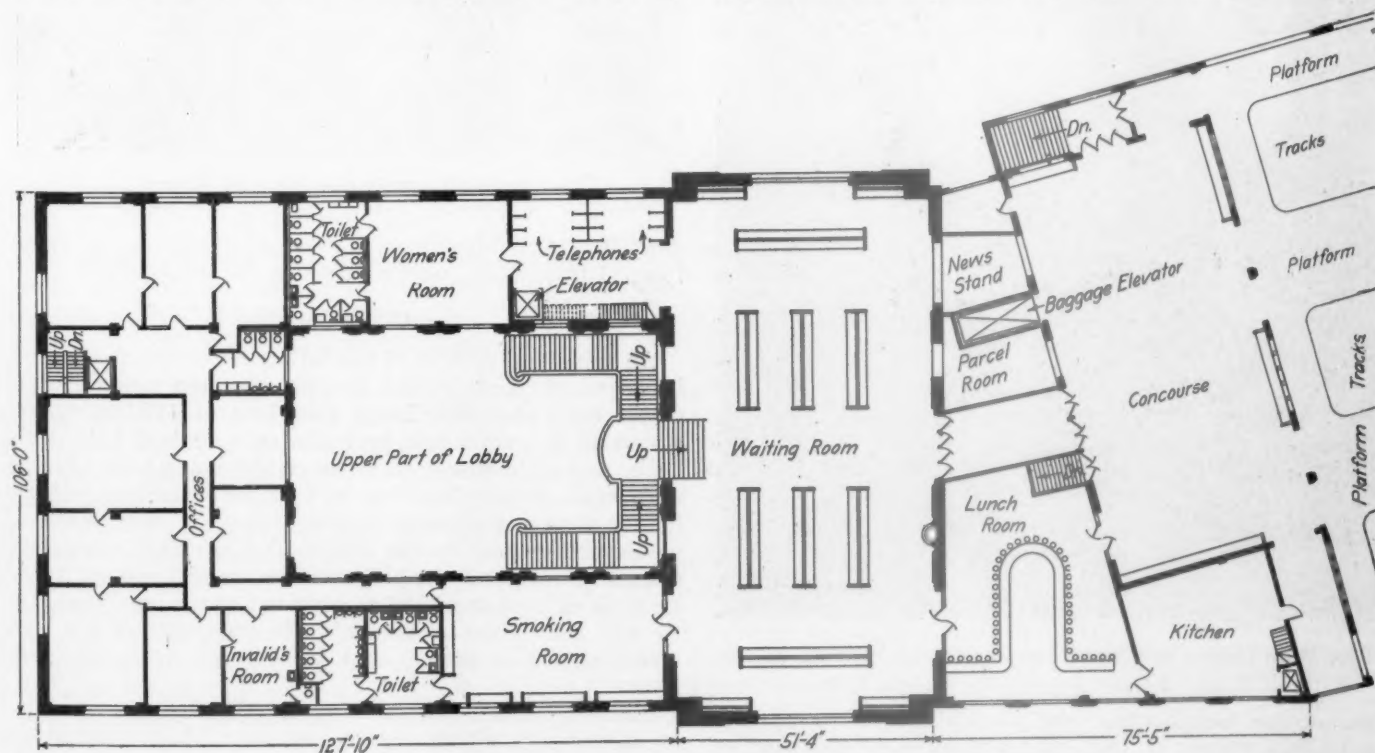


First or Street Floor Plan

point electric trucks will run to the desired platforms. The remainder of the first floor is given over to driveways and wharf space.

The main waiting room for trains occupies the east end of the second floor. It is 51 ft. by 106 ft. in area with

space between the waiting room and the concourse. Natural lighting is secured through large arched windows and from the skylight of the concourse. Artificial lighting is furnished by wall lights. Seat lights are also provided. The floors in the waiting room and lobby are terrazzo. Marble



Second Floor Plan Showing the Waiting Room and Concourse

the ceiling carried to the extreme height of the building. Opening from the waiting room on the Ohio street side is a lobby leading to the passenger elevator and the women's room. In this lobby are additional telephone facilities.

trim is used in both rooms and the walls are finished with artificial caen stone, while imitation caen stone is used in the ceilings. The station is heated by hot water under forced circulation from the power house which is located

at Michigan street, approximately 1,600 ft. east of the building. To the east of the waiting room is the concourse, 42 ft. 5 in. wide, with seats provided along the wall. Access to trains is secured through five gates leading to the platforms. A stairway leads from the north end of the concourse directly to Ohio street, eliminating the necessity of incoming passengers passing through the waiting room. The concourse has a tile floor and buff brick side walls. The west end of this floor and all the third and fourth floors are utilized for office purposes.

Directly east of the station building, and connected with it by the concourse, is a reinforced concrete slab carrying the high level tracks and the train shed. This slab is 150 ft. wide by 950 ft. in length and is supported by columns 40 in. in diameter and 19 ft. high, of the mushroom type designed and patented by the Concrete Steel Products Company, Chicago. The columns are spaced 27 ft. center to center, giving an unusually long span for this type of construction. Foundations for these columns are supported by wooden piles driven to rock and capped with pyramidal concrete slabs 9 ft. 4 in. in height and varying from 15 ft. to 18 ft. square. To permit the re-using of forms, this slab was built in sections 162 ft. in length and the full width of the slab, each of which was formed continuously in about twelve hours, working a $\frac{1}{2}$ -yd. and a 1-yd. mixers. Over 300,000 ft. B. M. of timber was used in the construc-



The Main Lobby and Stairs Leading to the Waiting Room

tion of the forms, while over 13,600 cu. yd. of concrete and 1,966,000 lb. of steel reinforcement were required for the slab and columns.

The train shed is the Bush type, built of concrete and steel and is 130 ft. 3 in. wide. The supports are in the platforms and are spaced 43 ft. 5 in. center to center. It is served by six stub tracks having a combined clear length of 4,400 ft. The tracks are arranged in pairs, spaced 13

ft. center to center and are separated by concrete platforms 20 ft. in width laid on a slag fill. The finished surface is 9 in. above the rail. The seventh track carried on the slab outside the train shed is the freight running track.

The site of the station is on made ground and a stratum of quicksand was also encountered. The foundation piles are all driven to rock and are designed to carry a load of 15 tons. Test piles were driven, capped and loaded to failure at 67 tons before the loading of foundation piles was



Interior View of the Waiting Room

decided upon. More than 18,000 piles, varying in length from 37 ft. to 54 ft., were required in the improvement.

OTHER FACILITIES

An important feature of the layout is the terminal warehouse which occupies the space under the concrete slab of the train shed that has a floor area of 112,000 sq. ft. Access to the warehouse by teams may be had from both Main and Ohio streets. Tracks on the lower level provide the rail facilities. The five bays of the warehouse adjoining the station on the east, with 18,000 sq. ft. of floor space, have been assigned to the Detroit & Cleveland Navigation Company for local freight facilities, while express platforms with 10,000 sq. ft. of platform space are located at the east end of the warehouse. The remainder of the area is unassigned at present and is held for future development.

Complete wharf and mooring facilities are provided by a concrete dock which extends east from Main street along the river side of the station and the warehouse. This dock is 1,800 ft. in length and is carried on wooden piles driven to rock and capped with timber with an 8-ft. concrete wall above.

The terminal district extends along the Buffalo river from Michigan street on the east to Commercial street on

the west. Included in this area, in addition to the new passenger station, is the lake freight house, the Elk street team yard and the local freight house and yard. All of these were part of the old arrangement and were served by low level tracks. In the new layout the entrance tracks are at the high level and to properly serve the low level freight yards, a rearrangement of tracks was necessary. The lake freight house is located on the Buffalo river west of Main street. Through this house is handled the rail interchange business with the Great Lakes Transit Corporation and the Detroit and Cleveland Navigation Company. In the old layout, the yard serving the freight house was stubbed at the west end and the switching was east. With the new arrangement the yard tracks are cut off at the east end. Traffic destined for this freight house is carried over Main street at the high level and then descends to the lower level at Commercial street. This incline track is the freight running track which also serves the export coal yard. For use in emergencies, a surface track is provided across Main street.

The local freight house is located between Columbia, Elk, Liberty and Perry streets with a yard at the lower level. The Elk street team yard is also at the street level. Traffic for these yards is brought down from the high level



Interior View of the Warehouse

at Michigan street to the lower at Mississippi street by means of an incline track. The terminal warehouse will also be reached from this track.

PRESENT STATUS OF THE WORK

The station building, the train shed, and the retaining walls, 1,636 ft. long, separating the high and low level tracks east of the station, are completed, and work is under way on the other buildings included in the layout. The power house and heating plant is located at Michigan street, and an electro-pneumatic interlocking plant superimposed on this structure will control the movement of trains on the high level tracks. The viaduct which will carry the running track over Main street and which will extend from the slab of the train shed to the west line of Main street is not yet under way, nor has work been started on the two retaining walls, 550 ft. in length, which extend from the viaduct west to retain the fill for the freight running track from the west end of the viaduct to the low level at Commercial street.

This project has been carried out under the direction of G. J. Ray, chief engineer, and George E. Boyd, division engineer of the Lackawanna. O. H. Kellogg, assistant engineer, is in direct charge of construction. Kenneth M. Murchison, New York City, was the architect for the

passenger station. The Buffalo Dredging Company was the contractor for all foundation work and for the train shed, and the Heddon Construction Company, New York, was the contractor for the station building.

THE DISCOMFORTS OF TRAVELING IN EUROPE

By Our Special European Correspondent

European travel—the kind we love to remember during the good old days when the humblest of us rode like a millionaire—is slowly but surely losing all its savor. We haven't yet got back to primitive stage-coach days or to the slow, wearisome hours of creeping along after the manner of old Spain, and we won't for before that time arrives, the governments will all have stepped in, classed travel as a luxury, and virtually suppressed the wandering instincts of their citizens. They have come to that long since in England, so far as regards foreign travel; now no Englishman can leave his Britannic majesty's shores unless showing due and lawful cause therefor, namely, on the strictest sort of strict business.

Like all Gaul as personally conducted by Caesar, travel in war-time may be divided into three parts, that in the interior of any country, that which projects one over the frontier, and finally that which leads by land and water. The tamest of these appears to be the first, but if you are a stranger or a citizen of another country, and you attempt to stop at the smaller centers, where a strange face is a curiosity, you are set upon by the villagers, you are made to stand and explain by the police and by the military until travel ceases to be a diversion and really becomes something like a big adventure. To boot, you have to put up with slow and crowded local trains that do not seem to be going anywhere in particular. In England 17 of the cross-country train services have been taken off, in Italy monthly passenger mileage has been cut from 123,600 miles to 72,000 miles and 100 trains have disappeared to make way for the increasing military freight and consumption reduction demands, and like reductions are going on in France, Germany and elsewhere.

To illustrate what happens to the stranger, let me tell how I got off one night at an Italian railway junction point, where I had expected a friend to meet me with his automobile and carry me from the station to his home, some miles distant. A brief glance outside the walled-in station, a protection typical of all European stations, told me that of friend there was none. So I returned to the station platform, walked up and down for a few minutes, then ventured to inquire of the stationmaster how at this late hour I might reach my friend's home village by telephone. He explained that there was no telephone and that, in view of the military censorship of telegrams which required them to be sent first to a central office, a telegram would probably not reach my friend before the next day. Then, as I had been speaking a broken Italian, he looked at me curiously and inquired: "Are you Swiss?" By the perversity of fortune which makes the traveler sometimes do or say the wrong thing, I promptly replied in my best German, "Nein!" Then, engrossed in the thought of reaching my friend, I walked down the platform to the depot restaurant found in every Italian depot, little or big, ate a beefsteak, and again returned to the platform to see if by any chance my friend had arrived after all.

Here two tall carabinieri, representatives of Italy's admirable traveling police, politely stopped me and asked if I would not step into the office of the military commandant of the station. In a flash I realized my foolish German "Nein," had let me in for an investigation, perhaps an arrest. As I entered the office, I saw the commandant seated at the head of a table, wearing his sternest official manner, and flanked

on either side by several younger officers looking ripe for sport.

"You are not Italian?" demanded the officer.

I smiled, laid before him my card, my permit to reside in Italy, and, finally, my passport. "I have even been permitted to visit your army front," I added. Then I explained how I had expected to be met by my friend, whom I had formerly visited, as indicated by the police stamp on my residence permit.

The officer, being a good sort, as are, indeed, those of all the armies when they feel you are as represented, promptly shook hands with me, asked me to be seated, and began to talk about the war, the only possible subject of general conversation in Europe. After we had agreed that the Germans were mad to have entered the war, in view of the gigantic commercial advantages they are losing, the officer very kindly put me in the way of reaching my friend—which, of course, is another story.

This personal experience when traveling within the frontiers of any given country has been that of every American abroad. In the out-of-the-way places, particularly near the war zones, there have been cases of real arrests and governmental insistence that the American leave the country, but, due to the difficulties Americans now have of obtaining passports at Washington, there are comparatively few Americans abroad whose identity is not pretty well established both at their embassies and at central police offices. In the larger cities, the arriving traveler at hotels is merely reported by a runner from the hotel at the central police station, practically as in peace times.

It is when the traveler starts to cross the frontiers that, sometimes, the hardships of war travel are apparent. The mere physical discomfort is not a matter to be idly discounted. The through trains are fewer, they are more crowded, less often cleaned, and unless one buys a first-class ticket and adds thereto the price of the parlor and sleeping car (\$5 for 24 hours), his journey may be unpleasant. For instance, an American woman with two children recently traveled from Paris to Rome. As a matter of economy, and relying upon the impression gained before the war that the second class was comfortable, she traveled second class. It was comfortable in France, but when an Italian train was taken, at Modane, a train that also accommodated local travel, she found her company to consist of men and women just a little better than the peasant type, none too cleanly in dress and given to eating all sorts of food and drinking all kinds of wine in their seats.

The discomfort of the journey was increased when, near Turin, it began to rain. The woman was looking out the window watching the rain pour down the hillsides, only as it seems to have been able to do since the war began, when she felt some water dripping upon her hair. She looked up to discover that, through a leak in the car roof, the rain had come in, utterly ruined a new hat, and was busy soaking into her valises stowed in the racks overhead. The further the train went, the worse it rained. She went to try to find seats in another car. All of them were leaking. An appeal to the conductor was fruitless: "What can you expect?" he said. "The sun was so hot during the summer it opened up these seams in the car roofs and they haven't been repaired. It's war time . . ." and so forth.

But these are mere discomforts that may be met in any country when traveling. The worst annoyances come from passports. Once the passport is stamped by your own embassy and consulate, a relatively simple matter if your identity is clear, it must then be stamped by the officials of the country you are leaving and of the one to which you are going. As the war has lengthened, all travel to other countries is being discouraged and even looked upon with suspicion, and, in addition to the delays common to embassies and consulates, you are called upon to offer good and suf-

ficient reasons for your journey. As a rule, three to five days of running about from office to office is necessary. If you are an American and going to Germany or Austria, you must present a good case of urgency or you don't go. Your own embassy must be well satisfied of the neutral character of your business before it will ask permission for you to depart. Likewise, the Germans and Austrians are none too willing to let persons quit them and reveal, as they generally do, military, political and social conditions.

But supposing you are provided with proper passports, you are able to buy your railway ticket without difficulty and travel, even through the war zones, until you come to a frontier station. Here your difficulties may be few or many, according, not to your passports, but to your luck. I knew one man who went from Italy to England and back again and his only unusual experience was this: At Boulogne he went to bed on board a channel boat expecting to wake up the next morning at Dover. He woke up once or twice during the night, heard the usual splashing of water through the porthole, and promptly went to sleep again, unafraid of submarines. Shortly after daylight he woke up, looked out, and saw that the vessel was tied up to a dock. He dressed, packed his valise, and went upon deck, ready to go ashore. There he saw the same dock he had seen the night previous before he went to bed. Surprised, he asked if the vessel had been forced to put back to Boulogne during the night. "She hasn't left the dock at all," he was told. "Her departure has been postponed until tonight. Meanwhile you passengers must go ashore, and report to the police station." The man spent a dull day and finally did arrive at Dover the next morning.

On the other hand, at the frontiers, many people, especially women, have adventures which to some of them are particularly dreadful. Many of the spies used by both sides in the war have been women. Consequently, all women are apt to be subjected to search at the frontiers, no matter in which direction they may be going. Customs officers have been made wary by multitudes of tricks. Thus, it being unlawful as a matter of national economy for persons to take gold coin out of France into Italy, or out of Italy into France, or any other country; a poor country woman carrying a basket of eggs recently was stopped at Modane. Inspection of the basket revealed under the eggs 20,000 lire in gold. It is not unusual for country women to carry baskets of eggs or chickens, but the trick of one has since made the frontier difficult for all the others.

A distinguished French lady, who had spent some months in Italy, stimulating charity work for the soldiers, on returning home took a personal note from the French ambassador asking that she be courteously treated at the frontier. Had she gone to France via Modane, all would doubtless have been well, but at the last moment she decided to return via Switzerland, an equally good route were it not for the war. As Switzerland's folk have been strongly suspected of trying to play the good old game of both ends against the middle and thereby earn an honest living, by the French, the Italians, the Austrians, and the Germans, travellers into her confines are searched with care. The lady in question aroused some unusual suspicion among the Italian officers at the frontier and she was searched right down to the skin, to the last thread of her hair. Her body was washed, to erase any writing secreted on her skin.

Her clothes were gone over, the seams unsewed, her private letters read, treated with chemical solutions to discover cipher writing—in short, the third degree of the frontiers was applied in all its rigors. When the lady was finally released, with nothing found of a suspicious nature, she dressed and came out in front of the other travellers suffocating with rage.

An English woman present, who was on her way to see sick friends in Switzerland, naturally unwilling to go through the

same examination if she could prevent it, began to cry, when her turn came: "I'm fainting, I'm fainting. Take me away from here." As the examiners have a holy horror of fainting women, who cause all kinds of trouble, they swiftly plucked her from the crowd and passed her and her baggage into the awaiting train.

To these delights of travel of course must be added the loss of baggage now and then, if one is fortunate enough to have any baggage to carry, for a veritable box and trunk famine exists. Trunks are no longer manufactured, and boxes for packing in such centers as Paris are hardly come by, and out in the villages or small cities new boxes cannot be bought at all. So travellers from the smaller places who are making journeys on account of the destruction of families, seeking new homes with other relatives, or what not, must often pile their belongings into old boxes dug out of cellars, or wheedled from grocers and stores.

When it comes to the last category of travel, that both by land and sea, by war refugees from Servia, from Roumania, from Turkey or Greece, by American commercial men, the train discomforts dwindle beside that of the danger from submarines and floating mines. An American on the continent who wishes to go to Petrograd must travel by way of London, Newcastle, across the upper North Sea to Bergen, thence across Norway and Sweden on the state railways, northwards to Haparanda, southward once more on Russian territory to Viborg, and finally Petrograd, a journey of seven days—provided connections are made. The cost of such a journey is \$100, more than twice that of the direct route through Germany before the war.

Should blessed peace come by next summer, should hostilities cease, then the hosts of American visitors to Europe to see its ruins will be able to travel, but not again as in the old days. Also, they will be robbed right and left by the hungry forces that used to prey on them but moderately. Hotels, for instance, which have been losing money for so long, will want to make up their losses, and who but the traveller, the tourist, to pay?

A REMEDY FOR COAL SHORTAGE*

By J. F. Porterfield

General Superintendent of Transportation, Illinois Central, Chicago, Ill.

The responsibility for the so-called "coal shortage" which recurs nearly every winter rests principally upon the consumer, more particularly the consumer of domestic coal for winter heating purposes and a number of the large manufacturing plants, which could, but do not, carry a reserve supply of coal. These consumers depend on keeping their reserve supply of coal on cars in the railroads' yards, which reduces the available cars for the legitimate transportation of coal. It is estimated that last year the coal used for manufacturing purposes was 40 per cent in excess of that consumed two years ago. The Illinois mines' output increased about 10 per cent over last year, during which period the coal loaded at mines on the Illinois Central alone increased 20 per cent.

Last year, owing to the large increase in coal exported and consumed for manufacturing purposes in the East, there was a considerable decrease in the eastern coal supplied the Northwest via the lakes, it being necessary for Illinois, in a measure, to overcome this shortage. In fact, Illinois coal was sold in considerable quantities in the eastern market.

With the exception of the years when coal mine strikes are anticipated, the larger percentage of the coal is transported during the months of September to January inclusive, so that while there is a good demand for coal carrying equipment these five months, during the balance of the year a large percent of the railroads' coal carrying equipment stands idle.

*From a paper read before the City Club, Chicago, January 24.

The Illinois Central has large yards at Centralia, Ill., and Carbondale for storing empty coal cars during the seven months of light coal traffic. During the past five years, or until last fall, the Illinois Central and the other coal carrying roads have had a surplus of coal carrying cars throughout the winter as well as the summer season.

It is not reasonable, or in the interest of economy, to require or expect the railroads to furnish equipment for handling the extra coal required during the winter, and carry the necessary reserve supply on their cars in terminal yards during the four or five months of heavy consumption, a period when severe weather conditions obtain, necessarily slowing down railroad operation.

To illustrate what holding a reserve supply of coal on cars involves,—during the spring and summer months, when there is no necessity for keeping a reserve supply, a coal car averages about 13 days per round trip, or more than two loads of coal per month, while at present, or at any time during the winter, our cars consume five to six days moving empty from the outer yard at Chicago to the mines and returning loaded, to which is added for those unloaded on our tracks at Chicago, six days, and for those delivered for unloading on connecting lines in switch movement, three days on our tracks and 11 days on connecting line tracks, a total of 20 days, or over 3 times as long at Chicago incident to unloading, as in service between Chicago and the mines.

December operation compared with March shows five additional car days per round trip, which indicates that during the time we are called on to handle the bulk of the coal traffic, we get one-third less actual transportation service out of the cars. This loss is due to greater detention for unloading, slower movement due to unfavorable weather conditions and other transportation difficulties incident to handling coal along with the heavy movement of grain and other winter traffic.

During the six months ending with August, 1916, mines on the Illinois Central alone, with the cars available, could easily have loaded 65,000 more cars of coal, or more than was loaded during the months of November and December.

An actual coal shortage was perhaps more nearly realized this winter than ever before, owing to the fact that there was less coal stored than in former years. The railroads as a rule store a substantial supply of coal, particularly at points of consumption distant from the mines, coaling plants being provided with storage bins for the unloading and storing of coal during the months of light coal traffic, in order to provide more cars for handling coal during the winter months.

I would suggest that, in order to avoid another coal shortage, distributors make a sufficiently higher price during the winter months to make it advantageous for consumers to store their supply of coal for heating purposes during the summer months and the larger users of coal to carry a reasonable stock in coal bins or yards instead of storing it in cars, which necessarily curtails the supply of cars during the time they are most needed; or, provide modern and adequate storage facilities in the different sections of the city, where cars in large numbers can be dumped quickly and returned to transportation service. The coal should be stored and handled by machinery, thereby speeding up the transportation and cheapening the present cost of handling. At the present time a very large percent of the coal unloaded is handled by the slow and expensive method of shovelling by hand from cars into storage bins and wagons.

HOW TO TELL MALLEABLE IRON.—If the break is clean malleable iron will show two distinct colors, white in the center and black on the outside, this black ring extending into the casting from 1/16 to 1/4 inch. Malleable will spark a little but enough to show it is not cast iron, which does not spark at all.—*The Welding Engineer.*

The Man Problem on the Railroads*

Advocates a Specialist on the Staff of the Chief Executive to Supervise This Problem for All Departments

By D. C. Buell

Director, The Railway Educational Bureau, Omaha, Neb.

ONLY a few years ago railroad work was a preferred job. A large majority of the men hired were boys or young men living along the line of the road. Railroad employees who had sons eagerly sought opportunities to get them into the service. Every station agent, in the smaller towns, had one or two boys helping him for the sake of the experience and the opportunity offered to learn the business; track forces were recruited almost exclusively from the young men of the smaller towns and farming communities along the line of the railroad; and as a result the rank and file of railroad employees were loyal, ambitious, and efficient.

Today, railroad managers are hard-pressed to get men of any description for many classes of service, and even where sufficient employees can be obtained to fill the ranks numerically, it is, unfortunately, true that in many cases such employees are neither permanent nor loyal, and that, as a consequence, they have no particular ambition to progress in railroad work, with the result that their efficiency is considerably less than it would be under other and better conditions.

We are facing facts—not theories—and in view of these facts, the man problem on the railroad resolves itself into a study which should lead to the solution and adoption of ways and means whereby young men of proper mentality, physique and ambition can be attracted to the railroad service, held and trained in that service, paid a fair wage in accordance with their ability and worth in the positions to which they are assigned, and given proper opportunity to learn the business, so that they can fit themselves to assume greater responsibility.

SOLUTION OF THE PROBLEM

In addition to this, the successful solution of the problem depends more than anything else on a properly worked-out plan whereby ambitious men, who have proved their loyalty and efficiency, and who have fitted themselves for promotion, are systematically and fairly considered for, and promoted to, better positions, in accordance with their worth and without unreasonable delay.

There would seem to be five main considerations which would make for permanency in any organization: First, good wages; second, permanent work; third, reasonable working hours; fourth, fair treatment; fifth, opportunity for advancement. There are also two supplementary conditions of importance: First, pleasant surroundings and second, comfortable and sanitary working quarters. These conditions will apply in a large majority of cases.

Fair treatment and the opportunity for advancement, coupled with a reasonable wage, seem to be the surest means of holding employees, and guarding against the breaking up of an organization due to someone coming along and winning away experienced employees by the offer of a few dollars' extra wages in some new position.

The problem of maintaining an efficient organization on a railroad, or in any other concern, consists in the intelligent selection, hiring, handling, educating, transferring and promoting of the units of the organization.

INDIFFERENT HANDLING OF HUMAN ELEMENT

Few roads have any specifications as to the qualifications of applicants other than the examination for physical fitness and tests for hearing and vision, which are required in certain branches of the service. Where physical examinations are required, other than in train service, it is usually on account of insurance or sick benefit features rather than on account of selection for physical fitness for a particular job. Mental specifications based on the requirements of the position are almost entirely lacking, and the man comes to the job uninspected—a more or less unknown and uncertain machine.

With few exceptions, such a man is put to work immediately, without any preliminary testing, breaking in, or adjusting to the new work, and his first week's work is done with but little supervision, and that oftentimes not expert. No scientific study is made of this man from day to day to make certain that he is performing efficiently. Few, if any, adjustments are made, even though he may not be "working right," in order to make him a smooth-running part of the machinery of the road. There is no daily performance sheet kept of his work, nor is he inspected from time to time for defects which could easily be remedied by proper handling. He is expected to pull full tonnage from the start, without a study having been made as to his tonnage capacity. If he fails to pull his tonnage, it is seldom that a study is made to find out if he would work better on some other division or in some other department, and it is but seldom that such a man has the opportunity to be transferred to a place where perhaps he could work effectively.

A SPECIALIST REQUIRED.

Where can we look for a correction of these difficulties? In the very nature of things, railroad organization is so complex that no one department or branch of the service can create a reform which will be effective throughout the entire organization. Corrective principles cannot be applied from the bottom—they must start at the top and work down throughout every branch of the organization.

The day must soon come when the man problem will be considered of sufficient importance to warrant the systematic attention of the executive heads of our railroads. On the staff of the executive who is at the head of each road there must be a special man, whose duty it will be to study this man problem, and who will be responsible in a general way for every phase of that problem in all departments of the organization. How else can the desired results be accomplished? In what other way can we re-establish the desire to be a railroad man and to do railroad work, in the hearts and minds of the type of men we need in the employ of the railroads of today?

The starting point in any system of building up a better organization is the creation of a desire in the minds of the kind of people who would become efficient in the organization, to enter its service. The reputation or standing which a firm or corporation has in a community has its influence on the class of employees that can be recruited for its ranks.

There must be the honest desire on the part of the management of a road to have its organization intelligent, loyal and efficient, and there must be the definite policy, under-

*From a paper read before the Railway Club of Pittsburgh, January 26, 1917.

stood by the entire organization, that every practical means will be taken to carry out this desire. The attitude of the corporation toward its employees must be such that there is no question in their minds but that the company has their welfare at heart, and will deal fairly with them under all conditions.

"SQUARE DEAL" COMMITTEE

I wish I were wise enough to conceive a slogan for the man problem that would accomplish what "Safety First" has done in working out the safety problems on our railroads. What we want is "a square deal for everyone." Some such slogan as this might be used. We need "square deal" committees in our offices, in our shops, on our divisions. We want to know of practices and of conditions which breed disloyalty, discontent and disorganization, so that they can be corrected. How can we accomplish it?

Let us examine the proposition of having a staff officer who would have general charge in an advisory capacity, or otherwise, of the selection, hiring, handling, educating, transferring and promoting of employees on a railroad.

Such a man would arrange to have a definite knowledge of the needs of every department of the railroad for new employees. He would make a survey of the requirements of each department, and know definitely the general type of man or woman that would be successful in each of the various openings. He would make a study of the scientific selection of employees. He would be practical enough to differentiate between those simple, fundamental tests which can be applied in a general way to the selection of men and women for various classes of work, and the so-called highly "scientific" methods which have been proven of doubtful value.

A common-sense study of the principles underlying the selection of men would, naturally, lead to the issuing of a few simple principles, rules, and tests to be used by those whose duty it is to employ men. A further study of the problem would take the duty of employing men out of the hands of incompetent clerks and place it in the hands of competent officials.

A knowledge of the employment needs throughout the system would make it possible to supply men for vacancies at one place from among men who might be laid off at another place, or to supply such vacancies by transferring men from one position to another, or by promotion.

This man, having worked out and put into effect a practical system of selecting men for vacancies, could then turn his attention to the problem of the handling of men. This in itself is a big problem and one for which there is no formula or infallible rule by which it can be solved; but is it not reasonable to assume that there is on every road some man who has been successful in the handling of men, who could be assigned to the duty of meeting with division officials, shop officials, general office officials, and others, for the purpose of explaining to them some of the basic principles underlying the successful handling of men, discussing with them their problems along this line, and advising them concerning the solution of these problems?

EDUCATING EMPLOYEES

The next step in the solution of the problem is the education of men. What right have we to expect that men will be efficient if no well-directed effort is made to train them for efficient service?

The late E. H. Harriman, whose work stands as a monument to his genius, insisted that a system of training be devised on the Union Pacific which would provide every ambitious employee with an opportunity to increase his knowledge and efficiency, thus fitting men in the ranks for promotion. The Educational Bureau, which was organized on the Union Pacific in 1909, placed within the reach of every ambitious employee of that company, an opportunity to study

practical railroad information that would be of benefit to him. The success of this plan and its extension to the Illinois Central and later to the Central of Georgia, led to the establishment of the present Railway Educational Bureau, of Omaha, Neb. This bureau provides a means whereby any railroad can offer to its employees, without expense to the company, and for the merely nominal charge of a dollar per month to those men interested, an opportunity to study up-to-date, practical railroad methods in practically every field of railroad work. There are many other sources of information available to railroad men—some good and some questionable; but there is no reason why railroad executives who are not yet ready to inaugurate an educational scheme of their own for their employees, should not make a careful investigation of existing educational methods for railroad men, and, by careful comparison and analysis, find some educational scheme worthy of recommending to their ambitious employees. With proper supervision, much good can be accomplished in this manner.

There are so many educational plans that can be worked out on a railroad at little expense that it seems absurd that more attention has not been paid to this important phase of the problem. Several roads have station training schools, where applicants for positions in station work are trained before being sent out on the road. The average cost of training such applicants for positions in station service is less than \$10 each. The training of firemen, brakemen, carmen, clerks, and countless other classes of employees could be accomplished, under proper supervision and direction, at an expense so low compared to the benefits to be derived as to make the investment one of the best dividend-producers imaginable. Think of the fuel wasted by the new fireman, the damage caused by a new brakeman giving improper signals, the mistakes made by a new clerk, which cause the misrouting or loss of a shipment, and compare the expense caused by these wastes and mistakes, with the nominal expense which would be required to establish a central training school on each large system for such men.

This special man's next important duty would be to work out plans for the intelligent transfer of men from one department to another, to broaden their experience and fit them for promotion, and intelligently to provide for the promotion of men in departments where it was not necessary or advisable to make transfers prior to promotion.

PROMOTION OF EMPLOYEES

To make promotions on an intelligent basis presupposes the keeping of a comprehensive record of a man's education, experience, ability, etc. Several roads have adopted a card record system for their employees. One such card, worked out for employees of the mechanical department of a large railroad, calls for information as to a man's executive ability, his mechanical ability, his accuracy, principles, confidence, discipline, education, energy, experience, initiative, judgment, memory, morality, neatness, organization, promptness, reliability, resourcefulness, tact and temper. The very fact that a foreman has to analyze his men and make out such a record for them, requires him to make a close study of this man problem, and gives him a line on men of ability who might, perhaps, not otherwise come to his attention.

With a record of this kind, or any other kind that has any merit, the problem of promoting men would be simplified, and a fair consideration would be given to all those who were at all qualified for promotion. With a centralized record of this kind, where a vacancy could not be filled from the organization of a particular shop, office, or division, a man in some other shop, office, or division of the road, who was qualified for the promotion, could be selected.

PERMANENCY OF ORGANIZATION

Can loyalty be inspired or efficiency obtained in an office where clerks know that the only hope of a raise lies in

someone ahead of them being discharged or dying? Is there any incentive for a man to exert extra effort when he knows that an arbitrary rule regarding wages and promotion will prevent him from receiving any material recognition for such efforts? Can it be expected that a foreman will do his best work when he knows that many of the men working under him receive higher wages than he does?

Wages can be adjusted on a more equitable basis. Nothing is impossible, and our new staff officer, with the broad understanding he would have of the problem, would be in a position to work out equitable readjustments and bring them to the attention of those who have the authority to make changes.

Railroad managers are more and more recognizing the importance of having permanent work for employees. This is indicated by the efforts being made to maintain section forces at normal strength throughout the entire twelve months, by the doing away with the old practice of shutting down shops for two or three days a month, to take care of changes in appropriations, etc. Continued study should be made of this problem so that as far as is practicable, employees would be assured of steady work throughout the year.

The subject of reasonable working hours is one that is of great importance, and our new staff officer could accomplish wonders along this line. When one sees clerks coming back to work overtime, without pay, three or four nights a week, week after week, it is an indication that something is wrong. How can such men be inspired with loyalty? How can it be expected that such men will not leave the railroad service the first time any kind of a job is offered that pays approximately the same wage and gives an assurance of reasonable working hours?

CLEAN AND SANITARY SURROUNDINGS

No matter how good a man may be he cannot do his best work in unpleasant surroundings or uncomfortable or unsanitary working quarters. Cockroaches around an office are unpleasant and unnecessary distractions; nor can it be expected that bright, clean young fellows will join track gangs where the bunk cars are alive with vermin and the food is not decently prepared. It is even reasonable to suppose that a "hunkey" would sleep better and be in better shape for his next day's work if his bed were not infested with vermin.

Statistics prove that there are less accidents in a shop which is kept cleaned up, or in a yard that is clean than in similar places where junk is allowed to accumulate and order does not reign.

Our special man could aid in seeing that the men's surroundings were made pleasant, and that their working quarters were comfortable and sanitary. However, he would be far too sensible to call this "welfare work"—he would know it was good business, and that the work should be carried out on a business-like basis, as a business proposition; so that the men would appreciate the matter instead of being antagonized by its being advertised as "welfare work"—another name for "paternalism."

As the work of our new staff officer progresses, his friendship for the men he learns to understand and love, will suggest to him many schemes that he could use to bring about a closer fellowship among the members of the various groups of employees, as well as between the groups themselves. Many forms of athletic sports can be encouraged; a baseball league formed among the employees of the various departments and divisions; bands, clubs, or societies organized—all of which, if rightly handled, will create the feeling of fellowship and mutual understanding among employees.

Railroad employees are regular folks, just the same as any other group of people; they are more intelligent than the average, more self-reliant, and they will respond more quickly to fair-dealing, true fellowship, and the desire to serve, than any other class of employees in the country; but

for these same reasons, they detect more quickly artificiality, selfish interest, and lack of sincerity than do other groups of workers.

No mention has been made of the perquisites of railroad employment. This omission up to this time has been intentional. Its discussion is a difficult one. Many men hold different views on the subject. Along this line must be considered pension systems, hospital fund systems, accident and health insurance, vacations, the granting of free transportation, and the number of other methods which have been adopted in an endeavor to aid and protect employees and make their work more attractive to them.

In all of these special features designed for the men's benefit, the method of administration is the most important consideration. When any system is adopted, it should be on a business basis—not on a paternal basis. The administration of the plan must be just, fair and the thought behind the plan, honest.

Any scheme of this kind must be worked out as a business proposition, pure and simple. Selfish motives or motives advantageous to the company are soon discovered by the rank and file, with the consequent nullification of the good which might have been accomplished had the scheme been put on a purely business basis, equitable alike to the company and its employees.

The officer who has the patience and the courage to gain the loyalty, fellowship, and co-operation of his employees, finds that team-work takes the place of unit effort; that good fellowship drives out discontent; that ambition and love of work will change an inefficient organization into an efficient one. It is well worth the effort.

Just a word about so-called "efficiency methods." Time study that forces a man to work as a machine, planning that leaves nothing to his own initiative, organization that considers employees merely as mechanical units instead of human beings, fails. To gain efficiency, the employee must be considered as a fellowman or a fellowwoman; must be inspired, by fair treatment, with the desire to do his or her share in playing the game, and must be intelligently instructed and directed, so that the energy willingly put into the work will be used effectively. Real efficiency on the part of a workman comes as a result of the love of the work being done, and of thoughtful and intelligent effort to do each task well and without waste of time or effort.

Thus we come to the last and most important of the considerations which make for permanency in an organization—fair treatment and opportunity for advancement. All the other conditions are summed up in these two.

Every man has a right to high ambitions. The higher a man aims and the harder he works to accomplish his purpose, the further up the ladder he will climb, even though he may never reach the desired goal. Men must be granted this right to a realization, in whole or in part, of their ambition. Men who are out of place should be studied until they can be located where their energies are directed along right lines. Men should be encouraged, aided, urged—yes, even forced—to take advantage of their opportunities.

In many cases a man working for a railroad has no idea of the vastness of the proposition and the opportunities that are everywhere around him to broaden out and make something of himself. These opportunities should be made known to men in all departments, and a chance given the deserving to make good.

When our American railroads are so organized that, by fair-dealing and proper attention to the welfare of their employees, they have built up a loyal, efficient group of fellow-workers, then, and not until then, instead of other industries taking employees away from the railroads, the railroads will be in a position to attract the men they want to their ranks and to hold them.

Each such group of contented employees will be loyal to

their company, will influence their families and friends to sing its praises, and will gain for it favorable public opinion.

The favorable public opinion of the vast army of American railroad employees, their families, and friends, is what is needed to re-establish in the hearts and minds of the public confidence in our railroads and our railroad securities.

PROPOSED LEGISLATION AFFECTING RAILWAYS

The following bills affecting railways have been introduced in Congress:

S. 8055, by Mr. Shields, January 27, 1917. To Committee on Intercoastal Canals. Providing that in measuring vessels and determining the tolls to be paid thereon at the Panama Canal, the measurement shall be made and tonnage determined in all cases by the Panama Canal rules as they now exist, or as they may be changed from time to time; and the tonnage arrived at by those rules shall be the tonnage to which shall be applied the rate fixed by the President for the purpose of determining the tolls to be collected, and shall be the tonnage to which shall be applied the maximum and minimum rates now fixed by law or hereafter to be fixed for the purpose of determining the maximum and minimum tolls which may be charged.

The House on February 1 passed the revenue bill including the provision for an excess profits tax of 8 per cent on the net income of corporations and partnerships above 8 per cent. The bill is now in the Senate.

Senator Overman introduced in the Senate on February 3 a bill, S. 8119, which has been referred to the Committee on Judiciary, which is similar in its provisions to a bill introduced in the House by Representative Carlin to amend section 10 of the Clayton anti-trust law to provide that the provisions of the law requiring railroads to secure competitive bids on purchases shall not apply in cases where no competition is possible by reason of the fact that the article of the special type or character desired can be had only of a single maker or seller at the point required.

Senator Overman also introduced a joint resolution, S. J. Res. 206, extending until January 8, 1918, the effective date of section 10.

The bill, H. R. 20630, introduced by a Mr. Sims on January 30 to authorize the President in certain emergencies to take possession of and operate railroads, referred to briefly in last week's issue, provides that in case of actual or threatened strike the President may take possession in whole or in part of any railroad in the United States and operate it, the property to be restored to its owners after the difficulty has been adjusted. All receipts after necessary expenses incurred during the temporary possession of the roads are to be paid over to the owners.

H. R. 20752, by Mr. Adamson on February 5. To Committee on Interstate and Foreign Commerce. To amend the mediation, conciliation and arbitration act of July 15, 1913; to authorize the President to protect the operation of trains in time of peace and to take possession of the common carriers and draft their crews and officials in time of war, and for other purposes. The bill was reported favorably by the committee on February 6. (See Washington Correspondence).

S. 8123, by Mr. Pomerene on February 5. To Committee on Interstate Commerce. To amend the act to regulate commerce to give the Interstate Commerce Commission jurisdiction over car service.

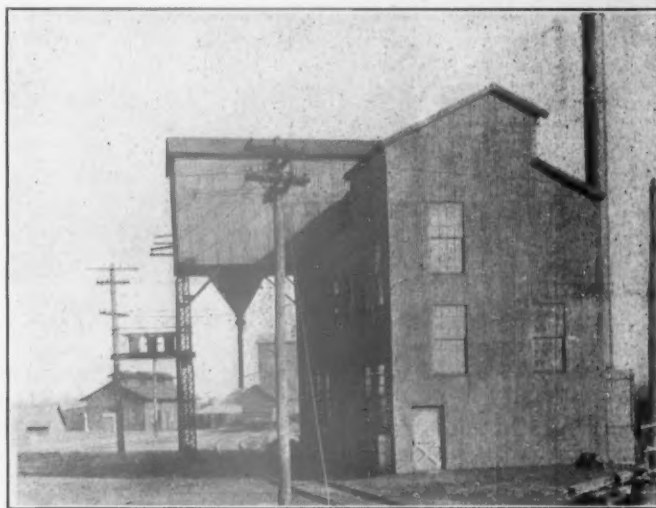
S. 8144, by Mr. Watson, February 5. To Committee on Interstate Commerce. Directing the Interstate Commerce Commission to supervise and direct the leasing of real estate owned or controlled by railroads and electric interurban railways engaged in the transportation of interstate business. Provides that the Interstate Commerce Commission may fix

terms, conditions, rentals and periods of time for the lease of real estate owned or controlled by railroads and not used in connection with their business, but no such leases or other agreements concerning the use or occupancy of such lands shall be entered into except upon the written approval of the commission. Leases now in force affecting such real estate shall not be renewed except on approval by the commission. Every party to an existing lease may apply to the commission for a revocation or modification thereof and the commission shall hold hearings and issue order. After 90 days from taking effect of the act railroads shall file copies of leases or rental agreements with the commission upon its request for use in any controversy or other investigation pending before the commission.

The Rayburn bill, H. R. 563, to regulate the issuance of railroad securities, and the Cullop hours of service bill, H. R. 9216, to provide an eight-hour day for telegraph and signal operators were called in the House on February 5 and were stricken from the unanimous consent calendar on objections.

PULVERIZED COAL PLANT FOR THE SANTA FE

Preparatory to testing the value of powdered coal as a locomotive fuel, the Atchison, Topeka & Santa Fe has had built at Marceline, Mo., by the Fuller Engineering Company, Allentown, Pa., a complete plant for pulverizing and drying the coal. Test runs are to be made in freight service between Marceline and Shopton, Iowa, a distance of 113 miles. A similar plant is to be erected at the latter point. Two Mikado engines are to be used for burning the pulverized fuel, one of which has been equipped with the apparatus of the Fuller Engineering Company, and the other is to be equipped with the apparatus of the Locomotive Pulverized Fuel Company. These engines have a total

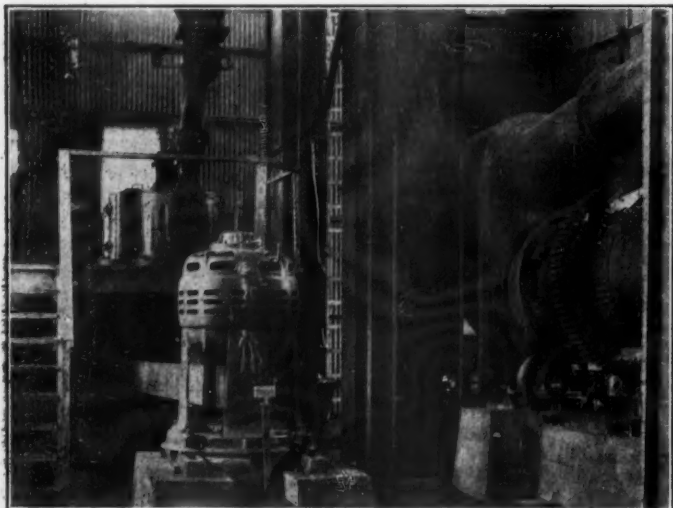


Santa Fe Pulverized Coal Plant at Marceline, Mo.

weight of 283,700 lb., 25 in. by 32 in. cylinders, a total heating surface of 4,111 sq. ft., a superheating surface of 880 sq. ft., making a total equivalent heating surface of 5,431 sq. ft. They operate at 200 lb. boiler pressure, and have a rated tractive effort of 59,600 lb.

An interior and exterior view of the pulverizing plant is shown in the accompanying illustrations. The capacity of this plant is dependent upon the output of the pulverizer, which is from 1¼ to 2½ tons per hour. The coal used is Marceline screenings, which consists of 4.8 per cent moisture, 35.6 per cent volatile, 44.6 per cent fixed carbon, and 15 per cent ash. The coal is brought in from the mines and unloaded directly from the cars into a receiving hopper so arranged that it will feed directly into an elevator. This

elevator discharges the coal into a storage bin having 11½ tons capacity. This is located above the coal dryer. A cradle or shaking type feeder is attached to the bottom of this bin to give a uniform supply of coal to the dryer. This dryer is shown at the left of the interior view. It consists of an inclined shell fitted with two tires mounted on rollers, and is driven by means of gearing. It is 3½ ft. in diameter and 42 ft. long, being fitted with the necessary stack mounted on a brick housing at the feed end. The coal is fed in at the upper end and by the rotating action of the drier it is gradually carried through the shell to the discharge end. Surrounding part of the drier shell is a large brick housing equipped with grates. The gases of combustion surround the shell and pass down through a smoke connection to the housing at the front end of the drier where these gases are reversed and passed through inside of the drier shell carrying off the liberated moisture. At the discharge end of the drier, in the spout leading down to an elevator, there is located a Cutler Hammer lifting magnet for the purpose of eliminating any tramp iron which may be in the coal. After being dried, the coal is elevated and discharged into a bin directly above a 33-in. Fuller-Lehigh pulverizing mill of 14 tons capacity. This machine reduces the coal in one operation so that 85 per cent of it will pass through a 200 mesh sieve. Fine pulverization is very essential for the successful burning of any coal and means rapid and perfect combustion.



Interior View of the Santa Fe Pulverized Coal Plant

From this pulverizer the coal is raised by an elevator and discharged into a screw conveyor which carries the coal to a 20-ton pulverized coal storage bin located over the center of the track and arranged for feeding the pulverized coal to the locomotive tender.

The building in which this equipment is installed is of steel frame construction covered with corrugated iron siding and roofing. The installation was put up as an experimental one and some minor details are arranged for only temporary use, as it is intended later to move this plant to some other location. The entire equipment is electrically driven throughout, the current being furnished from a power house located in Marceline, and each unit is driven by an individual motor, alternating current being used. With the exception of the Fuller-Mill the entire equipment is driven by means of back geared motors eliminating all but one small countershaft and making the installation a safe one from an operating standpoint. A preliminary crusher is usually installed in connection with a plant of this kind, but no crusher was included in this case, as the coal received is screened to pass through a one-inch ring. In a permanent installation the crusher is necessary as the coal received will be of various sizes and grades. One miller and one laborer only are required for

operating this plant during one shift. The power required in the whole plant is about 17 hp. hrs., per ton of coal handled.

BATTERY CHARGING SETS IN INTERBOROUGH SIGNAL TOWERS

The Interborough Rapid Transit Company, New York City, has during the past two years standardized its motor generator sets and switchboards in signal cabins by installing the combination, shown herewith, in 28 cabins.

The sets are of the two-unit, two-bearing General Electric type. The motors are shunt wound and operate from the 550-650 volt supply to the propulsion circuit. The generators are shunt wound and deliver from 45 to 60 amperes at 20 to 30 volts for charging the storage batteries.

The switchboard is simple in arrangement. A pilot lamp



Standard Battery Charging Set

connected across the generator side of the circuit breaker obviates the necessity of a voltmeter, and as the overload and underload poles of the circuit breaker are closed independently no generator line switch is necessary. The four-pole battery-charging switch is so constructed that while interchanging the two sets of storage batteries from charge to discharge and vice versa, the discharge circuit is never broken or at any time connected to the generator. A continuous current-reading in both the charge and discharge circuits is afforded by separate ammeters. The motor-starting box is mounted on the front of the panel and the generator field rheostat on the back, controlled by a handwheel on the front, thus concentrating the whole control of the set and batteries on the board.

General News Department

In a fire at Buffalo, N. Y., on February 3, the passenger station of the New York Central was damaged to the amount of \$25,000.

The Public Service Commission of Maryland has authorized the railroads of the state to make their annual reports for the year ending December 31 instead of that ending June 30 as heretofore.

Out of 600 employees of the Illinois Central system reported to be members of the new union in the maintenance of way department, which was scheduled to strike on February 5, only 58 men, employed on the Yazoo & Mississippi Valley, left work.

A partial summary of returns from 99 large roads for the month of December, issued by the Interstate Commerce Commission shows net operating revenue per mile of \$424, or exactly the same as was reported by these roads for December, 1915. Gross revenues per mile were \$1,384 as compared with \$1,263 in 1915 and expenses \$960 as compared with \$839. These roads represent 119,804 miles.

The Southern Railway reports that during the month of December individuals and industries in the South received \$1.25 from the railway company for every dollar which the people of the South paid to the road. The company disbursed during the month for labor, material, supplies and other purposes, \$7,433,169, of which \$6,199,705, or 83.41 per cent, was paid to individuals and industries located in the South.

The Seaboard Air Line has received two 52-ton General Electric gas-electric motor cars, and they have been put in service on the main line between Jacksonville, Fla., and Savannah, Ga. Each motor car will replace on this run, of 138 miles, a steam train of one combination car and one coach. The gas-electric cars will make one trip each way a day. It is of interest to note that this is the first instance where gas-electric cars have been operated in main line service on a steam railroad between important cities.

The lowering of one track—the northbound—in the tunnel of the Philadelphia, Baltimore & Washington, south of the Union station in Baltimore, which has been going on for the past six months is to be finished by February 20; and both of the tracks through the tunnel will be available for use on the occasion of the heavy traffic to and from Washington on March 4. The track has been lowered about 2 ft. 6 in. The southbound track will be lowered to the same level. The tunnel is also being made a little wider, so that the highest and widest cars and engines can be run through it.

The United States Civil Service Commission announces examinations March 6 for designing mechanical engineer. There is a vacancy under the Board of Engineers, United States Army, New York City, at \$2,100 a year. The duties of this position are those of an expert designing mechanical engineer familiar with structural steel and reinforced concrete, and will include the designing of mechanical equipment and material pertaining to permanent fortifications, heavy mobile armament, and armored railway trains. At least ten years' experience in the design of heavy machinery and equipment, of which not less than three years was in a position of responsibility, is a prerequisite for consideration. Applicants must have reached their 30th birthday.

On the Pennsylvania Railroad waste paper is now collected with care, and it is expected that the quantity saved in a year will bring about \$22,500. Ten thousand burlap bags have been distributed to stations, shops and offices for the collection of waste paper, including newspapers left in trains. The company has installed a baling machine at Pitcairn, which is baling at the rate of 1,500 tons annually. The selling price of this baled paper, it is said, is about \$15 a ton. The Lehigh Valley has taken similar action, and has installed seven baling machines. These are at Jersey City, Easton, Hazleton, Wilkes-Barre, Sayre, Auburn and Buffalo. The baled paper will be sent to Packerton, Pa., where it will be reduced to pulp by a macerating machine.

Chairman Padgett of the Naval Affairs Committee of the House of Representatives on Tuesday introduced a bill authorizing the President "to require the owner or occupier of any factory in which ships or war materials are built or produced to place at the disposal of the United States the whole or any part of the output of any such factory and to deliver such output or part thereof in such quantities and at such times as may be specified in the order, at such reasonable price as shall be determined by the Secretary of the navy." The President would also be authorized by the bill "to requisition and take over for use or operation by the government the factory or any part thereof without taking possession of the factory itself, whether the United States has or has not any contract or agreement with the owner or occupier of such factory."

The Pennsylvania Railroad reports that employees during 1916 saved more than \$14,000,000 worth of the company's property from destruction by the flames. The annual report of the insurance department, covering the lines both east and west of Pittsburgh, shows that employees extinguished 385 fires before the arrival of the public fire companies. The total loss sustained in these fires was only \$16,437, while the value of the property endangered was \$14,526,481. Regularly organized fire brigades among employees extinguished 90 fires; 111 fires were extinguished by individual employees, and locomotive fire apparatus was instrumental in checking 23 fires. The total number of fires, which occurred on property of the road in 1916, was 840, or 189 less than in the preceding year. The total fire loss amounted to \$1,782,750, of which \$1,376,879 was due to two exceptionally large losses, the grain elevator at Canton, Baltimore, which burned June 13, 1916, and the elevator at Erie, which was destroyed on December 10, 1915.

St. Paul Union Station Plans Finally Approved

The operating agreement of the proposed St. Paul (Minn.) union passenger station has been orally approved by all the railroads which are members of the St. Paul Union Depot Company. The head house and track agreements have already been signed, and the next step will be to complete detailed plans of the entire project, following which construction work will begin.

Grand Trunk Watch Inspectors

At Montreal, January 18 and 19, the watch inspectors of the Grand Trunk Railway, from all over the System, held a convention for the purpose of co-ordinating their work. H. Hulatt, manager of telegraphs, presided, and on behalf of the company entertained the inspectors at luncheon on the 18th.

The reports of inspectors are now compiled in the head office at Montreal. The official list of watches approved for service on the Grand Trunk allows a selection of practically 100 different grades, made by thirteen well-known manufacturers. The meeting discussed the preparing of reports, with a view to securing maximum accuracy. At the close of the convention, R. Hemsley of Montreal, on behalf of the inspectors, presented to Miss Doyle, of the Time Service Record Bureau, a solid gold wrist watch.

The National Chamber of Commerce

The fifth annual meeting of the Chamber of Commerce of the United States held in Washington January 31 and February 1 and 2, was the largest in the chamber's history. More organizations were represented than ever before. Among the speakers was Walker D. Hines, chairman of the board of directors of the Atchison, Topeka & Santa Fe. Mr. Hines declared there was "a danger, so far as strikes are concerned," which is just as real today as it was last August. "A failure to deal with the matter now," said Mr. Hines, "so as to insure governmental control of this strike problem in the interest of the whole people will leave business subject at any time, and from time to time, to be paralyzed whenever the railroad brotherhoods believe that their pri-

vate interests will be promoted by bringing about paralysis. . . . The present absence of strike talk on the part of the brotherhoods is merely temporary. Perhaps it is just the velvet glove to cover the iron hand, in the hope that through that expedient Congress may be induced to let the session end without legislation to protect the public interest against the paralysis of interstate transportation."

Charles F. Weed of Boston, chairman of the chamber's committee on railroads, said he was of the opinion that as a matter of principle when a man enters the railroad service—a public service on which the health, safety and existence of the whole community depends—he, by that act, should surrender the right to join in concerted action to paralyze that service.

The committee on railroads indorsed President Wilson's recommendation that employees should be denied the right to interrupt service before the public has been put in possession of an authoritative statement of facts. The committee also submitted two proposals, one that the public shall be given a majority representation on any board of investigation or arbitration; and, secondly, that Congress shall create under the Interstate Commerce Commission a permanent division to compile railroad labor statistics and other data for the use of arbitration boards in all future railroad controversies.

Car Surpluses and Shortages in Ten Years

The American Railway Association is calling attention to the ten-year record of freight car surpluses and shortages, as shown in the accompanying table:

These figures show that for the whole period of nearly nine years preceding the middle of August this year, there had been a continuous net surplusage of cars not in use on American railroads except for about one month in 1909, three months in 1912, one month in 1913, and the month of March last year.

In 1908 there was at one time a surplusage of over 413,000 cars, and at no time during the year were there less than 100,000 idle cars.

In 1909 the maximum net surplusage was 332,513. In 1910

country increased during that same eight years from 1,840,009 on July 1, 1907, to 2,518,855 on July 1, 1916.

Disastrous Derailment at Cromwell, Iowa

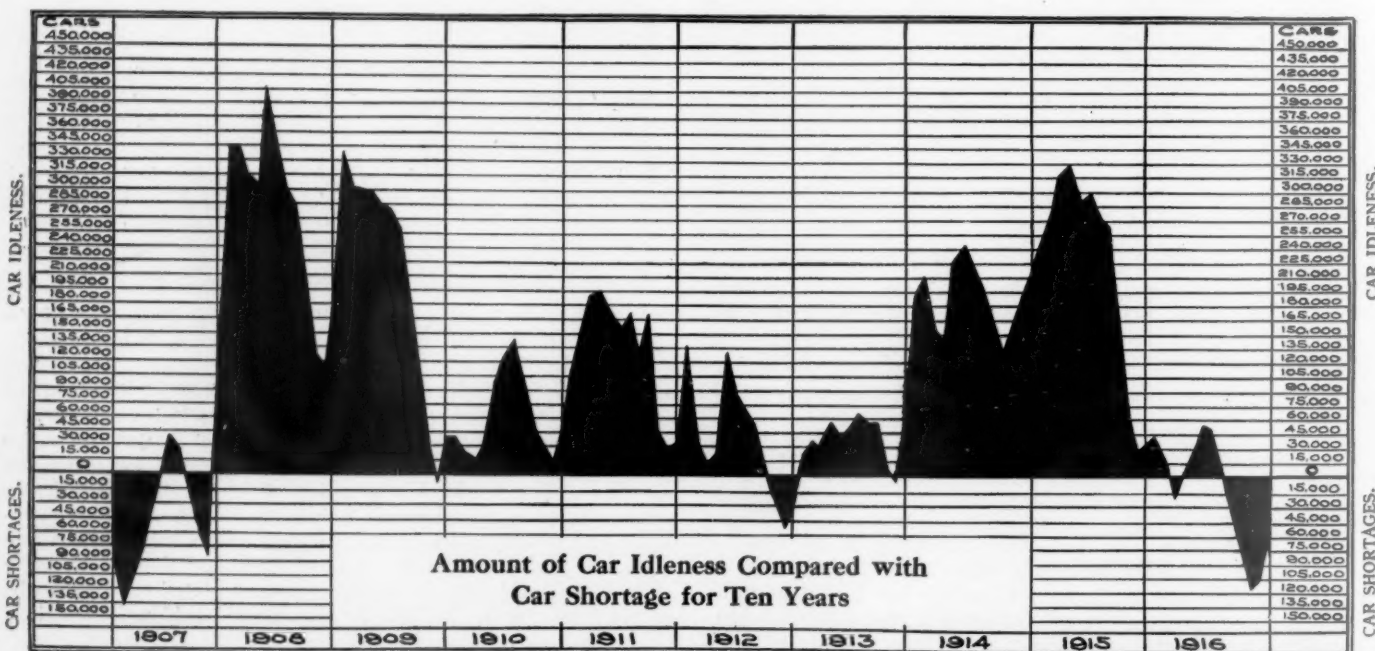
The "Nebraska Limited," of the Chicago, Burlington & Quincy, eastbound from Lincoln, Neb., to Chicago, was derailed near Cromwell, Iowa, on Friday evening, February 2. Four passengers were killed and 21 injured. Three Pullman cars, one dining car and one steel coach were precipitated over a 20-ft. embankment while the locomotive and tender, two baggage cars, one smoking car, and the lounge car at the rear of the train remained on the track. Although the cause of the accident has not yet been definitely determined it is believed to have been a broken driving rod which fell and broke a frog.

St. Paul Electrification Progress

Electric locomotives are now running over the entire length of the C. M. & St. P., electrification which includes the Missoula and Rocky Mountain divisions, extending from Harlowton, Montana, to Avery, Idaho, a distance of 438 miles. Construction work has been completed over the entire distance excepting the installation of the overhead wire in the St. Paul Pass tunnel at the summit of the Bitter Root mountains, near the western end of the electric zone. The concrete lining of the tunnel is not yet finished, and steam locomotives are used to haul trains through.

The "Philadelphia Plan"

The Philadelphia Bourse, together with nine other commercial organizations of that city, which have created the joint committee on reasonable regulation of railroads, is carrying on an extensive publicity campaign for the purpose of setting forth the advantages of what is called the "Philadelphia plan" for a reorganization of governmental machinery for railroad regulation. This plan was described in the *Railway Age Gazette* of November 24, 1916, and is the result of extensive study and in-



the maximum was nearly 143,000 for July 6, and there was throughout that year a net surplusage of at least 7,000 cars not requisitioned by shippers. For 1911, surplus cars numbered on March 15 over 207,000, and there were at no time during the year less than 20,000 cars standing idle.

In January, 1912, there was a net surplusage of approximately 136,000. From November, 1913, until March, 1916, there was a continuous surplusage of cars, the number running in October, 1914, to over 200,000, when the American Railway Association stopped compiling them. Compilation was resumed on February 1, 1915, when idle cars still numbered over 279,000.

The number of freight cars owned by the railroads of the

investigation since the Bourse first declared for centralized federal regulation of railways in January, 1915. The principal feature of the plan provides for the complete reorganization of the Interstate Commerce Commission, and the creation of six federal regional commissions, and an appellate body to harmonize and co-ordinate the regional commissions, to be designated as the board of revisions and appeals.

The six regions proposed under this plan would consist of an eastern region, with headquarters at New York, a southern region with headquarters at Atlanta, a lake region with headquarters at Fort Wayne, a central region with headquarters at Omaha, a southwestern region with headquarters at Dallas, Tex.,

and a western region with headquarters at Salt Lake City, each embracing a territory in which the industries, character of traffic, places of outlet and general conditions are homogeneous. It is proposed that each regional commission shall consist of seven men, one a jurist, three business men and three expert railroad men, to be appointed by the President of the United States, and to be residents of the district. One of the seven members would be elected chairman and the six chairmen would constitute the board of revisions and appeals, together with a board chairman appointed by the President, to make its headquarters in Washington, and hold semi-annual sessions to harmonize conflicting rules by the regional commissions, and determine questions of principle and of country-wide application. The chairman would be permanently located in Washington. The plan is to be set forth in detail before the Newlands Joint Committee on Interstate Commerce when it resumes its hearings in the general inquiry on railroad regulation and control.

Chicago Switchmen Vote to Strike

Five thousand switchmen employed by 18 railroads in the Chicago switching district have voted to strike unless certain grievances against four lines in the district are not adjusted. The ballot also contains the broad statement that "it should be definitely understood that the vote will be used, if necessary, promptly, to effect a settlement of all differences." This is taken to mean that in the event of the annulment of the Adamson law by the United States Supreme Court, no settlement of the pending grievances will be made unless the railroads grant the eight-hour day with ten hours' pay and time and one-half for overtime.

The following are the grievances: 1. The discharge of a switchman on the Atchison, Topeka & Santa Fe for refusing to work with a yard engine with less than one foreman and two helpers. 2. The use of road men for switching work on the Chicago, Burlington & Quincy. 3. Coupling the caboose to the locomotive instead of to the end of the train on the Chicago, Milwaukee & St. Paul. 4. The discharge of a yardman on the New York Central for declining to uncouple the air hose between the engine and the tender until proper protection was assured as required by the safety rules.

The railroads affected by the strike vote are those upon which the switchmen belong to the Brotherhood of Railroad Trainmen. They include the Atchison, Topeka & Santa Fe, the Baltimore & Ohio, the Chicago & Alton, the Chicago & Western Indiana, the Chicago & North Western, the Chicago, Burlington & Quincy, the Chicago Junction, the Chicago, Milwaukee & St. Paul, the Chicago, Indianapolis & Louisville, the Chicago & Erie, the Indiana Harbor Belt, the Illinois Central, the New York Central (Lines West), the New York, Chicago & St. Louis, the Pittsburgh, Ft. Wayne & Chicago, the Pittsburgh, Cincinnati, Chicago & St. Louis, the Belt Railway of Chicago and the Wabash.

William L. Chambers, of the Federal Board of Mediation, is in Chicago, but it is not clear whether he has been formally requested to take action.

Representatives of the switchmen and the conference committee of Western Railways had a conference on Thursday to consider the strike issues.

A Car-Service Commission with Plenary Powers

At the meeting of the American Railway Association held in New York on February 2 the new code of car service rules published in last week's issue of the *Railway Age Gazette*, page 188, was adopted, to become effective on February 21, by the signatures of members of the association to an agreement to observe and enforce the rules subject to three months' notice of intention to withdraw from the agreement. To meet the suggestions of the Interstate Commerce Commission in its report on the car supply investigation the association also adopted a resolution authorizing the president, W. W. Atterbury, to appoint a new commission on car service of five members, with plenary powers. A new form of agreement was attached to the car service rules by which the subscribing company "hereby agrees to the appointment of a committee of five men with plenary power, to co-operate with the Interstate Commerce Commission, by sitting in Washington in the administration of the rules in the foregoing agreement, and to make such necessary modifications in these rules as may be required to prevent undue hardship and to be

bound thereby; said committee to have such power until May 1, 1917."

The new car service commission consists of C. M. Sheaffer, general superintendent of transportation of the Pennsylvania Railroad, chairman; W. A. Worthington, vice-president and assistant to chairman of the Southern Pacific; J. T. King, general superintendent of transportation, Atlantic Coast Line; W. C. Kendall, superintendent of car service, Boston & Maine, and W. L. Barnes, superintendent of transportation of the Chicago, Burlington & Quincy. George Hodges, chairman of the Committee on Relations Between Railroads, is secretary. The committee thus represents the various sections of the country; New England, the Central States, the South, the Central West and the Far West.

The first meeting of the committee was held at Washington on Tuesday, February 6, and a conference with Commissioner McChord was arranged for the following day.

The contract, by which the Car Service Commission at Washington now becomes a body with definite authority, instead of a mere committee of the American Railway Association, had been signed, up to February 8, by 146 roads. The following is a list of the names of the roads, omitting those which are less than 100 miles long:

Atchison T. & S. F. System.	Los Angeles & Salt Lake.
Atlantic Coast Line.	Louisville & Nashville.
Baltimore & Ohio.	Macon, D. & S.
Bangor & Aroostook.	Maine Central.
Belt Railway (Chicago).	Manistee & N. E.
Bessemer & Lake Erie.	Maryland & Penn.
Boston & Maine.	Minneapolis, St. P. & S. S. M.
Buffalo, R. & P.	Missouri Pacific.
Carolina, Clinchfield & O.	Nashville, C. & St. Louis.
Central New England.	Nevada Northern.
Central of Georgia.	New Orleans G. N.
Central of New Jersey.	New Orleans, Tex. & Mex.
Charleston & W. C.	New York Central Lines.
Chesapeake & Ohio.	New York, Chicago & St. L.
Chicago & Alton.	New York, N. H. & H.
Chicago & W. I.	New York, P. & N.
Chicago & N. W.	Norfolk & Western.
Chicago, B. & Quincy.	Norfolk Southern.
Chicago Great Western.	Northern Pacific.
Chicago, I. & L.	Northwestern Pacific.
Chicago, M. & St. Paul.	Oregon Short Line.
Chicago, R. I. & Pacific.	O. W. R. R. & N.
C. St. P. M. & O.	Pennsylvania.
Chicago, T. H. & S. E.	Pennsylvania Lines.
Cincinnati, Ind. & W.	Philadelphia & Reading.
Coal & Coke.	Pittsburg & Shawmut.
Colorado & Southern.	Pittsburg, Shawmut & N.
Cumberland Valley.	Richmond, F. & P.
Delaware & Hudson.	Rutland.
Delaware, L. & W.	St. Louis & Belleville.
Detroit, T. & I.	St. Louis, B. & Mex.
Duluth, M. & N.	San Antonio & A. P.
East St. Louis & Suburban (Lebanon Div.).	Seaboard Air Line.
Elgin, Joliet & E.	Southern Pacific.
El Paso & S. W.	Spokane, P. & S.
Erie.	Tennessee Central.
Fort Worth & D. C.	Texas & Pacific.
Georgia.	Toronto, H. & B.
Georgia & Florida.	Ulster & Delaware.
Grand Rapids & I.	Union Pacific.
Great Northern.	Virginian.
Hocking Valley.	Wabash Pitts. Term.
Illinois Central.	West Side Belt.
Las Vegas & Tonopah.	Western Maryland.
Lehigh & H. R.	Western Pacific.
Lehigh & N. E.	Western of Ala.
Lehigh Valley.	Atlanta & W. P.
Long Island.	Wheeling & Lake Erie.

Chicago Association of Commerce on Railroad Regulation

After a period of careful investigation the freight traffic committee of the Chicago Association of Commerce has prepared a report, which has been adopted by the executive committee, stating the position of the association on the question of railroad regulation. The recommendations embodied in the report are summarized as follows:

1. New legislation in the direction of exclusive federal control of rates, fares, classifications, regulations and practices.
2. Federal incorporation of common carriers as the proper means of accomplishing federal regulation of the issuance of securities.
3. The addition of two commissioners to the Interstate Commerce Commission. The creation of regional commissions is opposed, as is any reorganization of the commission by which its nation-wide jurisdiction exercised from the national capital shall be curtailed or divided. By slightly amending the act to regulate commerce practically all the work of the commission, except hearing and determining of complaints, investigation and suspension matters, and matters involving prosecution for criminal violation of the act, could be assigned to divisions of the commission and the individual commissioners could be given substantially the full

authority of the commission with reference to matters in their respective divisions, subject always and only to review and revision by the entire commission. In practical effect this would mean that substantially all the work of the commission, purely ministerial or administrative in character, would be passed upon finally by an individual commissioner instead of requiring the attention of the commission. It is believed that this arrangement would enable the commission to give preferred attention to suspension cases pending before it, and make possible a reduction of the period of suspension from 10 months to 6 months.

4. The Interstate Commerce Commission should have authority to establish minimum rates when necessary to remove unjust discrimination.

5. Government ownership is opposed.

6. The shipper should have the clear and distinct right now enjoyed by the carrier to review in the courts any order of the commission.

MEETINGS AND CONVENTIONS

The following list gives names of secretaries, dates of next or regular meetings and places of meeting of those associations which will meet during the next three months. The full list of meetings and conventions is published only in the first issue of the Railway Age Gazette for each month.

- AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.**—F. A. Pontious, 455 Grand Central Station, Chicago. Next meeting, February 20, New York.
- AMERICAN RAILWAY ENGINEERING ASSOCIATION.**—E. H. Fritch, 900 S. Michigan Ave., Chicago. Next convention, March 20-22, 1917, Chicago.
- AMERICAN SOCIETY OF CIVIL ENGINEERS.**—Chas. Warren Hunt, 220 W. 57th St., New York. Regular meetings, 1st and 3d Wednesday in month, except July and August, 220 W. 57th St., New York.
- CANADIAN RAILWAY CLUB.**—James Powell, Grand Trunk, P. O. Box 7, St. Lambert (near Montreal), Que. Regular meetings, 2d Tuesday in month, except June, July and August, Windsor Hotel, Montreal, Que.
- CANADIAN SOCIETY OF CIVIL ENGINEERS.**—Clement H. McLeod, 176 Mansfield St., Montreal, Que. Regular meetings, 1st Thursday in October, November, December, February, March and April. Annual meeting, January, Montreal.
- CAR FOREMEN'S ASSOCIATION OF CHICAGO.**—Aaron Kline, 841 Lawlor Ave., Chicago. Regular meetings, 2d Monday in month, except June, July and August, Hotel La Salle, Chicago.
- CENTRAL RAILWAY CLUB.**—H. D. Vought, 95 Liberty St., New York. Regular meetings, 2d Friday in January, May, September and November. Annual dinner, 2d Thursday in March, Hotel Statler, Buffalo, N. Y.
- CINCINNATI RAILWAY CLUB.**—H. Boutet, Chief Interchange Inspector, Cin'ti Rys., 101 Carew Bldg., Cincinnati. Regular meetings, 2d Tuesday, February, May, September and November, Hotel Sinton, Cincinnati.
- ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.**—Elmer K. Hiles, 2511 Oliver Bldg., Pittsburgh, Pa. Regular meetings, 1st and 3d Tuesday, Pittsburgh, Pa.
- GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.**—A. M. Hunter, 321 Grand Central Station, Chicago. Regular meetings, Wednesday, preceding 3d Thursday in month, Room 1856, Transportation Bldg., Chicago.
- NATIONAL RAILWAY APPLIANCES ASSOCIATION.**—C. W. Kelly, 349 Peoples Gas Bldg., Chicago. Next convention, March 19-22, 1917, Chicago.
- NEW ENGLAND RAILROAD CLUB.**—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meeting, 2d Tuesday in month, except June, July, August and September, Boston.
- NEW YORK RAILROAD CLUB.**—Harry D. Vought, 95 Liberty St., New York. Regular meeting, 3d Friday in month, except June, July and August, 29 W. 39th St., New York.
- NIAGARA FRONTIER CAR MEN'S ASSOCIATION.**—Geo. A. J. Hochgrebe, 623 Brisbane Bldg., Buffalo, N. Y. Meetings, 3d Wednesday in month, New York Telephone Bldg., Buffalo, N. Y.
- PEORIA ASSOCIATION OF RAILROAD OFFICERS.**—F. C. Stewart, 410 Masonic Temple Bldg., Peoria, Ill. Regular meetings, 3d Thursday in month, Jefferson Hotel, Peoria.
- RAILROAD CLUB OF KANSAS CITY.**—Claude Manlove, 1008 Walnut St., Kansas City, Mo. Regular meetings, 3d Saturday in month, Kansas City.
- RAILWAY CLUB OF PITTSBURGH.**—J. B. Anderson, Room 207, P. R. R. Sta., Pittsburgh, Pa. Regular meetings, 4th Friday in month, except June, July and August, Pittsburgh Commercial Club Rooms, Colonial-Annex Hotel, Pittsburgh.
- RAILWAY DEVELOPMENT ASSOCIATION.**—D. C. Welty, Commissioner of Agriculture, St. L., Iron Mt. & So., 1047 Railway Exchange Bldg., St. Louis. Annual meeting, May 9-11, Louisville, Ky.
- RICHMOND RAILROAD CLUB.**—F. O. Robinson, C. & O., Richmond, Va. Regular meetings, 2d Monday in month, except June, July and August.
- ST. LOUIS RAILWAY CLUB.**—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2d Friday in month, except June, July and August, St. Louis.
- SOUTHERN & SOUTHWESTERN RAILWAY CLUB.**—A. J. Merrill, Grand Bldg., Atlanta, Ga. Regular meetings, 3d Thursday, January, March, May, July, September, November, 10 a. m., Piedmont Hotel, Atlanta.
- TOLEDO TRANSPORTATION CLUB.**—Harry S. Fox, Toledo, Ohio. Regular meetings, 1st Saturday in month, Boody House, Toledo.
- TRAFFIC CLUB OF CHICAGO.**—W. H. Wharton, La Salle Hotel, Chicago.
- TRAFFIC CLUB OF NEW YORK.**—C. A. Swope, 291 Broadway, New York. Regular meetings, last Tuesday in month, except June, July and August, Waldorf-Astoria Hotel, New York.
- UTAH SOCIETY OF ENGINEERS.**—Frank W. Moore, 1111 Newhouse Bldg., Salt Lake City, Utah. Regular meetings, 3d Friday in month, except July and August, Salt Lake City.
- WESTERN CANADA RAILWAY CLUB.**—L. Kon, Immigration Agent, Grand Trunk Pacific, Winnipeg, Man. Regular meetings, 2d Monday, except June, July and August, Winnipeg.
- WESTERN RAILWAY CLUB.**—J. W. Taylor, 1112 Karpen Bldg., Chicago. Regular meetings, 3d Monday in month, except June, July and August, Hotel Sherman, Chicago.
- WESTERN SOCIETY OF ENGINEERS.**—E. N. Layfield, 1735 Monadnock Block, Chicago. Regular meetings, 1st Monday in month, except January, July and August, Chicago. Extra meetings, except in July and August, generally on other Monday evenings. Annual meeting, 1st Wednesday after 1st Thursday in January, Chicago.

Traffic News

The Transportation Association of Chicago will hold its ninth annual dinner at the Grand Pacific hotel on February 19.

J. B. McGinnis has been appointed traffic commissioner of the Memphis (Tenn.) Hay & Grain Exchange, succeeding C. B. Stafford.

L. M. Allen, passenger traffic manager of the Chicago, Rock Island & Pacific has been elected chairman of the executive committee of the Western Passenger Association.

At the end of last week the number of cars waiting at Buffalo, N. Y., and Bridgeburg, Ont., for Toronto and other points in Canada, over the Grand Trunk, was 7,800, much of this freight being coal. The Delaware & Hudson issued a notice February 1 placing an embargo on all freight destined to points in Canada, over the Grand Trunk or the Canadian Pacific, by way of Rouse's Point or Mooers Junction.

The embargoes placed by the Trunk Lines and particularly at Atlantic Seaboard points have been extended during the past week in various directions. The Pennsylvania has put an extensive embargo on the movement of freight eastbound through Pittsburgh. The New York Central has embargoed nearly everything at Cleveland and points in that vicinity, except coal; this having been made necessary by the severe weather. Only the most necessary freight is being received from connections in New York State. The New York, New Haven & Hartford has extended its existing embargoes for one week. At Richmond, Va., a notice was issued that the Pennsylvania could receive nothing for points north of Philadelphia, with the usual exceptions of live stock, etc. The Michigan Central placed an extensive embargo on shipments westbound. The Central of New Jersey is accepting no freight for export.

The Canadian Pulp & Paper Association, describing shippers' losses from freight car delays, and blaming both the Government and the railroads, declares, in a published report, that the car situation is about the worst in the history of the country; that although it was claimed that the car shortage was largely due to shippers using cars as warehouses, a month's trial of the high demurrage charge shows the situation to be infinitely worse than when the rate was advanced, and that the principal cause is lack of locomotives. "Loaded cars are left in terminals and on sidings for weeks; cars are only moved an average daily mileage of about one-quarter that ordinarily considered normal; every terminal is blocked to suffocation, and the efficiency of available equipment is reduced by at least 50 per cent." It is declared that the recent embargo on Canadian cars passing the boundary line and the inability to get cars from the United States to carry American orders has played havoc with the pulp and paper industry.

Hearing on Proposed Increased Freight Rates in C. F. A. Territory

The hearing before W. J. Disque, examiner of the Interstate Commerce Commission, at Chicago, last week, on the proposed revision of class rates in Central Freight Association territory was adjourned on February 3 to March 1. W. C. Maxwell, vice-president in charge of traffic of the Wabash, was the first witness for the railroads. He showed that the level of freight rates in C. F. A. territory is lower than in other territories; that no fixed relation exists between the class rates now in effect, and that rates have no definite relation to distances. He also introduced exhibits to show that the earnings of railroads in the territory are unreasonably low. P. C. Sprague, division freight agent of the Pennsylvania Lines at Richmond, Ind., explained the details of the preparation of the proposed new rates and how the percentage relationship between the various classes had been determined. The contention of the railroads is that although the proposed tariffs are higher than those now in effect, they are, nevertheless, still substantially lower than similar rates now in effect in other territories.

J. Webster, assistant freight traffic manager of the New York Central Lines West of Buffalo, explained the application of the new rates to different parts of Central Freight Association ter-

ritory. Generally speaking, rates from local points are the same as rates from the nearest junction points. At the western boundary of this area, where it overlaps with Western Trunk Line territory, special zones have been established in which uniform rates apply as determined after an agreement with western trunk line carriers. Similarly, zones have been established at the eastern boundary, adjacent to Buffalo, N. Y., Youngstown, Ohio, and Pittsburgh, Pa.

In the lower peninsula of Michigan three zones are provided for in the new tariff, the southernmost of which comprises that part of the state which produces traffic similar to that of Indiana. A middle zone will have rates somewhat higher because the traffic is less dense, the farms less productive and manufactures less developed. The northern zone in the southern peninsula will have still higher rates because of the unproductive character of its traffic and thin population. G. C. Conn, freight traffic manager of the Pere Marquette, introduced testimony to show the necessity of a zone arrangement in southern Michigan, and also showed that a similar division into zones had been made in a similar section and for like reasons in New England Freight Association territory.

Freight Congestion in West Cause for Concern

The congestion of freight cars in western terminals, which first became acute about six weeks ago when eastern lines placed general embargoes on eastbound business, has again become a distressing problem. A short period of mild weather in January permitted some appreciable improvement in the situation, but the coming of the severest cold spell of the winter, beginning on February 1, has resulted in the worst congestion of the winter. At the time of writing the available sources of information indicate that from 20,000 to 25,000 cars destined to eastern points are standing on lines west of Lake Michigan and the Illinois-Indiana boundary, detained on account of embargoes. Of this number about one-third were within the Chicago switching district. The restrictions placed on traffic by eastern roads have stopped the movement of practically all freight, with minor exceptions varying with the different lines, including perishables and livestock, coal consigned to hospitals and public utilities, farm fertilizer and seeds, food, and freight for certain local points in eastern territory. Unfortunately, even freight coming within these exceptions has been often refused, with the consequence that some western connections have placed blanket embargoes on all freight destined to eastern points. The Chicago, Burlington & Quincy has enforced such an embargo since January 18, and the Missouri Pacific put a similar order in force at St. Louis on February 1. The Illinois Central has a blanket embargo against the Michigan Central and the Pennsylvania Lines, and the Chicago & Eastern Illinois have issued one against the Pere Marquette and the Michigan Central.

Western shippers have been taking advantage of every loophole in the blockade, but with decreasing success. For instance, cars have been consigned to local points on eastern roads, where the embargo was not in effect, and have there been reconsigned to final destination at New York, Philadelphia or some other far eastern point. In other cases cars have been moved through insignificant gateways, which had not been specifically embargoed. Practically all of these openings have now been closed.

One encouraging feature of the situation at Chicago is that little or no complaint of coal shortage has been heard during the latest cold spell, which is the severest of the season. Ever since the conference between Chicago lines and the State Public Utilities Commission of Illinois on January 18, coal in large quantities has been delivered in the city. The new rules governing the reconsignment of cars loaded with coal, put into effect by the Illinois Utilities Commission on January 17, have done much to reduce car detention in Chicago yards. Of the coal cars billed to the Chicago yards of the Chicago & Alton, which are reconsigned, 90 per cent are reconsigned before arrival, or from 15 to 20 per cent more than were so handled under the old rules. Practically no cars are held after the first 24 hours, whereas formerly they were held an average of from three to four days. At the Wildwood (Chicago) yards of the Illinois Central approximately 200 cars are now reconsigned after arrival, as compared with 350 under the old rules, and practically no cars are held after the first day, as against an average detention of from three to four days formerly.

Commission and Court News

INTERSTATE COMMERCE COMMISSION

The commission has suspended until June 1 tariffs filed by the Missouri Pacific and other western lines increasing rates on hay in carloads from Missouri river points to St. Louis, Mo., and various other destinations.

The commission has further suspended until August 7 the proposed withdrawal of rates for the movement of special baggage or passenger cars from, to and between points on the Southern Railway in Mississippi and the Mobile & Ohio.

The commission has further suspended until August 10 the withdrawal of application of class rates on cabbages, potatoes and other vegetables in carloads from points in Georgia to Oklahoma City and other destinations west of the Mississippi river.

The commission has denied the applications of the railroads for permission to make the proposed new reconsignment tariffs effective on short notice. These tariffs were formulated by the railroads at a meeting at Chicago on December 28, following conferences held in Washington between the commission on car service of the American Railway Association, traffic officers of the railroads and representatives of the shippers.

The commission has suspended until June 1 tariffs filed by the southwestern railways providing for a new scale of class rates applicable on freight between points in Texas and Oklahoma, which for certain mileages conform to the rates established by the Texas lines following the commission's decision in the Shreveport case. The suspended schedules also would extend the application of the new scale to certain Kansas, Arkansas and Louisiana points. These rates were filed by the carriers in accordance with their announced intention of advancing rates between points in Texas and surrounding states, which had previously been reduced by the effect of the low Texas schedule. The commission in its announcement of the suspension says that the proposed rates are in many instances in excess of the present Texas class rates. The commission also suspended until June 1 increased class rates between New Orleans and Shreveport, La., and other points in the same general territory.

Rates on Wheat Products from Utah

Utah-Idaho Millers & Grain Dealers' Association v. Denver & Rio Grande et al. Opinion by Commissioner Meyer:

Rates on wheat flour and other products of wheat from points in Utah and Idaho to points in Nevada and California are found unreasonable and unduly prejudicial to the extent that they exceed by more than 5 cents per 100 lb. the present rates on wheat. (42 I. C. C., 148.)

New Orleans Terminal Allowances

Opinion by Commissioner Clark:

A proposed allowance of 18 cents per ton to cover switching charges and the cost of transfer direct from cars through chutes or conveyors into barges, boats, or other vessels lying alongside tipples and wharves, of coal shipped from Alabama mines to New Orleans, is found not justified and schedules under suspension ordered canceled. The respondent, the Louisville & Nashville, is authorized to establish tariff rules providing for the absorption of switching charges, and for the payment of handling charges in an amount which shall not exceed 11 cents per ton. (42 I. C. C., 748.)

Car Spotting Charge

Railroad Commissioners of the State of Florida v. Florida East Coast. Opinion by Commissioner Harlan:

The mere fact that the defendant's policy of imposing a charge for special services differs from the policy in that regard of other carriers in the same territory does not warrant a finding of unjust discrimination.

Upon the facts shown of record the spotting charge of \$2 a car

demanding by the defendant for the receipt and delivery of carload shipments at industries on private or spur tracks along its line is not found to be unreasonable or otherwise unlawful. Complaint dismissed. (42 I. C. C., 616.)

Eastern Export Iron and Steel Case

Opinion by Commissioner Daniels:

A proposed cancellation of, or increases in, export rates on iron and steel from points in central freight association and trunk line territories to Atlantic ports and from points in central freight association territory to Gulf ports is found not justified as a whole, but the carriers are authorized to apply present domestic rates on export traffic from Pittsburgh to the Atlantic seaboard provided Chicago, Cincinnati and other points in central freight association territory are given rates to the seaboard properly adjusted with reference thereto. The proposed schedules in issue are to be held under suspension until new tariffs are filed in accordance with the commission's views.

The carriers for some time have maintained export rates one-third less than the domestic rates. In this hearing they brought up evidence of changed conditions, such as the increased export business, the higher prices, the congestion at the ports, etc.

Congestion at the seaboard during the past year has at times necessitated the embargoing of iron and steel for export. Certain shippers, to defeat the embargoes, resorted to the practice of billing their shipments to the ports as for domestic use and in less than carloads, and after having gotten them there at domestic rates delivered them to the steamships through their own agencies, bearing the teaming expense in some cases from points as far away as Newark, N. J. In other cases shipments were consigned to certain points intermediate to the seaboard against which there were no embargoes, and subsequently were reconsigned to the ports on the basis of the combination of local rates to and from the reconsigning points. These things have been done in the face of increased ocean rates.

Since the outbreak of the war the export business in iron and steel has grown by leaps and bounds. Respondents, having in mind the enormous quantities of war material that are now moving, feel that the continued maintenance of the present export rates means a serious loss of revenue that they are justly entitled to receive and which they think they are entitled to enjoy without detriment to the shippers. Carriers regard the domestic rates as reasonable and are of opinion that the export traffic will move as freely on the domestic rates as on the export rates as long as present conditions continue.

While the shippers would of course prefer to see the export rates continued, there appears to be no great objection to the application of domestic rates during the existence of present conditions. What opposition there is seems to be due in some measure to the fear that the shippers may experience some difficulty in having the export rates restored, when immediately upon the cessation of hostilities the foreign competition will probably make itself manifest.

Commissioners Clements and Hall dissent (43 I. C. C., 5).

COURT NEWS

Fires—No Interest Prior to Judgment Recoverable

The Springfield Court of Appeals, Mo., holds that interest is not recoverable on a claim *ex delicto* against a railroad for fire set by sparks between the date of the fire and the rendition of judgment.—*Oliver v. St. Louis, I. M. & S. (Mo.)*, 190 S. W., 361.

Limited Valuation of Shipments

The Kansas City Court of Appeals holds that stipulation in a contract of intrastate shipment placing a limited valuation on the property shipped in case of loss by the carrier's default, when not made in consideration of a special or reduced rate, is not binding on the shipper. But a stipulation that "the amount of any loss or damage for which the carrier should be liable should be computed on the basis of the value of the property, being the bona fide invoice price, if any, to the consignee, including the freight charges, if prepaid, "was valid, not being a stipulation for a limited valuation, the parties having a right to embrace in their contract an agreed rule for the actual value of the property. The shipper of a soda fountain, under such a con-

tract, who had purchased it for \$100, though the actual value of it was \$250, could recover only the cost to him.—*Wilson v. C. G. W. (Mo.)*, 190 S. W., 22.

Notice of Claim for Loss Cannot be Waived

The Montana Supreme Court holds that a stipulation in a bill of lading for an interstate shipment of cattle for notice of claim for loss or injury before removal or mingling with other stock cannot be waived by the carrier, under the provisions of the interstate commerce act forbidding discrimination.—*Wall v. Northern Pacific (Mont.)*, 161 Pac., 518.

Contract to Transport for Life Invalid

The New Jersey Court of Chancery holds that a contract whereby a railroad company agrees to carry a person and the members of his family for life between two points in consideration of deeds to right of way, is violative of section 18 of the New Jersey Utilities Act of 1911, providing that no public utility shall make or give any "undue or unreasonable preference."—*Perkins v. Public Service Ry. Co. (N. J.)*, 99 Atl., 387.

Free Transportation

The Court of Errors and Appeals of New Jersey, reversing the judgment of the New Jersey Supreme Court (88 N. J. Law, 526, 96 Atl., 665), holds that the provision of the New Jersey General Railroad Act requiring that the secretary to the Governor be carried free of charge is unconstitutional as to railroads operating under special charters previously granted and containing no such provision.—*Pennsylvania v. Herrmann (N. J.)*, 99 Atl., 404.

Initial Passenger Carrier Merely Agent of Connection

The Illinois Appellate Division holds that, it being presumed, in the absence of evidence to the contrary, that a railroad company selling a through ticket over its own and a connecting line merely acts as agent for the other line, it is not liable in damages to the purchaser for the refusal of the connecting line to honor the ticket and transport the passenger in accordance therewith.—*Schoenfeld v. L. S. & M. S.*, 197 Ill. App., 419.

Excessive Damages

The Kansas City Court of Appeals holds that a verdict of \$1,500, under the federal employers' liability act, in a suit brought by the administrator of a deceased employee for the benefit of a sister as his next of kin, which, even were it assumed that he gave her \$37 a year, amounted to twice the present value of such yearly contribution during her life expectancy, was excessive, as a dependent is only entitled to recover the present value of his loss.—*Smith v. Pryor (Mo.)*, 190 S. W., 69.

Proof of Negligence and Cause of Fire by Sparks

In an action for damages caused by fire alleged to have been set by a locomotive, the Oregon Supreme Court holds that the law does not require of a railroad care beyond that which the state of the art will admit. Modern science and ingenuity have not made it possible to manage steam locomotives so as absolutely to prevent the escape of sparks; and a railroad will not be liable for fires caused by the escape of ordinary and usual quantities of sparks while the engine is operated in the ordinary course of business by competent men.—*Mt. Emily Timber Co. v. O. W. R. & N. Co. (Ore.)*, 161 Pac., 398.

Hours of Service Law

In violation of a railroad's rules, a telegraph operator remained on duty more than nine hours, performing clerical work after the expiration of that time. The Circuit Court of Appeals, Ninth Circuit, held that, as the act is a remedial rather than a penal one, and as Congress before the passage of the act struck out the word "knowingly" before the word "permitting," in the phrase "requiring or permitting any employee to remain on duty," etc., the railroad company is liable, though no superior servant ordered the operator to remain on duty in violation of the statute; this being particularly true, as any other construction would render proof of a violation extremely difficult.—*Oregon Short Line v. United States*, 234 Fed., 584.

Louisiana Stop, Look and Listen Rule

The Louisiana Supreme Court holds that a traveler at a crossing who contributes to an accident from an approaching train by failing to stop, look and listen, cannot recover, though the railroad is also negligent. The action was for the death of a young lady who was struck by a passenger train while attempting to cross three tracks in a buggy. It was held that if she had looked and listened she had ample opportunity to see and hear the train before she reached the crossing, and no recovery could be had. *Foreman v. Louisiana Western (La.)*, 73 So., 242.

Noise from Spur Track Switching

After the construction of a railroad's main line, a citizen acquired a residence a short distance from the right of way. Thereafter, to furnish facilities to a compress company, the railroad over its own property completed a spur track leading to the compress. The noise of switching annoyed the resident and his family. The Mississippi Supreme Court holds, in an action for damages on account of the noise, that as the railroad could have been compelled to construct the spur track to furnish facilities, and had no option in the matter, and that in so doing it was carrying on the business for which it was organized, the plaintiff could not recover.—*Dean v. Southern (Miss.)*, 73 So., 25.

Issue of Bill of Lading After Shipment

The Indiana Appellate Court holds that if a bill of lading is not furnished the shipper until after the goods are fully accepted by the carrier under an oral agreement, the bill of lading constitutes no part of the contract, and the oral agreement controls. The action was one for injuries to a shipment of live stock, and the defense was that the railroad's liability was limited by the bill of lading. This was not issued until two months after the animals were shipped, and the railroad set up a custom between it and the plaintiff not to issue bills of lading at the time shipments were made. It was held that no established custom was proved.—*Chesapeake & Ohio v. Jordan (Ind.)*, 114 N. E., 460.

Stop, Look and Listen Rule

In an action for the death of the driver of a wagon at a crossing struck by a special train approaching at about 60 miles an hour, it appeared that the deceased paid no attention to the approaching train, and the engineman applied his brake in emergency, but could not stop. The driver was within sight of the approaching train 1,500 feet before reaching crossing, and did not stop, look or listen; and the California Supreme Court holds that he was guilty of contributory negligence, barring recovery. His conduct was not relieved from fault by virtue of his right to presume that the railroad would not run its train at an excessive speed. The fact that the train was a special train did not relieve him. It was also held that the trial court should have instructed that in the absence of any statute or ordinance regulating the speed of trains a rate of 60 miles an hour was not of itself negligence.—*Larrabee v. Western Pacific (Cal.)*, 161 Pac., 750.

Separation of Races; Interstate Passengers

The Mississippi Supreme Court holds that a state statute requiring railroads to provide equal but separate Pullman accommodations for the white and colored races by providing two or more cars for each train, or by dividing the cars so as to secure separate accommodations, is a reasonable police regulation, and not confiscatory, although the number of negro passengers in Pullman cars is so small as to be negligible, and the expense of installing accommodations for the two races would be large, and to do so would be a burden on interstate commerce. The case was one in which a white woman, traveling on the Memphis Special from Philadelphia to Memphis, was awarded \$1,000 actual and punitive damages for being compelled to travel within the state in a Pullman sleeper in which was a colored woman. At the point where the plaintiff boarded the train, Philadelphia, and at that where the colored passenger boarded, New York, there are no statutes nor rules requiring separation of races, but these statutes are in force in Virginia, Tennessee, Alabama and Mississippi. The statutes are practically phrased alike. It was held the statute might be enforced as to both interstate and intrastate passengers.—*Southern v. Norton (Miss.)*, 73 So., 1.

Railway Officers

Executive, Financial, Legal and Accounting

Mrs. Melodia B. Jones has been elected president of the Gulf & Ship Island, succeeding J. T. Jones, deceased, and Miss Grace E. Jones has been elected vice-president. Both with offices at Buffalo, N. Y.

P. C. Archer, who has been in charge of personal injury cases in the office of the general claim agent of the Chicago & Alton, has been appointed assistant general claim agent, with headquarters at Chicago, Ill.

Charles A. Magaw has been appointed assistant general attorney of the Union Pacific, in charge of legal work in Nebraska and Kansas, succeeding B. A. Scandrett, resigned to go with another company.

C. A. Butler, assistant general freight agent of the Chicago, Milwaukee & St. Paul, with office at Chicago, Ill., has been appointed assistant to the vice-president, with headquarters at the same city. A sketch and photograph of Mr. Butler appeared in these columns on March 16, 1916.

J. E. Merion, auditor of the Vandalia at Terre Haute, Ind., has been appointed assistant controller of the Pennsylvania Company, and the Pittsburgh, Cincinnati, Chicago & St. Louis; J. J. Lyons, assistant auditor of disbursements, has been appointed auditor of miscellaneous accounts of the Pennsylvania Company and the Pittsburgh, Cincinnati, Chicago & St. Louis, succeeding A. P. Griest, deceased, and W. M. Kennedy has been appointed assistant auditor of disbursements, succeeding J. J. Lyons. All with headquarters at Pittsburgh, Pa.

Benjamin W. Scandrett, whose appointment as general attorney for the Northern Pacific, with headquarters at St. Paul, Minn., has been announced, was born at Faribault, Minn., on March 3, 1883. After taking an engineering course at the University of Minnesota he entered Washburn College of Law at Topeka, Kan., where he graduated in June, 1906. On May 1, 1907, he entered the law department of the Union Pacific at Topeka, Kan., as second assistant to the general attorney for the states of Kansas and Missouri. In 1911 he was promoted to first assistant to the general attorney. On August 1, 1913, he was appointed assistant general attorney, with headquarters at Omaha, Neb., with jurisdiction over legal work in the states of Nebraska and Iowa. He continued to hold that position until his appointment as general attorney of the Northern Pacific, effective January 22, 1917. He succeeds D. F. Lyons, promoted.

Operating

G. Bowler has been appointed trainmaster of the Montreal terminals division of the Canadian Pacific, with office at Montreal, Que.

J. W. Morrow, acting superintendent of transportation of the Coal & Coke Railway at Gassaway, W. Va., has been appointed superintendent of transportation.

J. W. Newbern has been appointed trainmaster on the Gainesville district of the Third division of the Atlantic Coast Line, with headquarters at Newberry, Fla.

W. T. Tyler, superintendent of the Northern Pacific at Pasco, Wash., has been appointed general manager of the St. Louis-Southwestern, with headquarters at St. Louis, Mo.

O. C. Castle, car service agent of the Southern Pacific, Texas and Louisiana lines, has been appointed superintendent of car service, with office at Houston, Tex., the title of car service agent being abolished.

W. C. Sloan, trainmaster of the Northern Pacific, with office at Forsyth, Mont., has been appointed superintendent of the Pasco division, with headquarters at Pasco, Wash., succeeding W. T. Tyler, resigned to go with another company.

M. M. Smith has been appointed assistant trainmaster of the Pennsylvania Lines West of Pittsburgh, Northwest System, with office at Crestline, Ohio; H. A. Weaver has been appointed assistant trainmaster, with headquarters at Conway, Pa.

F. M. Falck, acting superintendent of the Reading division of the Philadelphia & Reading at Reading, Pa., has resumed active charge of the Atlantic City Railroad as superintendent, with office at Camden, N. J., and has been appointed superintendent also of the Delaware River Ferry Company of New Jersey, vice H. C. Felton, retired; O. A. Weidner, assistant superintendent of the Atlantic City Railroad Company, has been appointed assistant superintendent of the Delaware River Ferry Company; W. F. Eckert, superintendent of the Wilmington & Columbia division of the Philadelphia & Reading at Reading, Pa., has been appointed superintendent of the Reading division, with office at Reading, vice Mr. Falck; I. T. Tyson, assistant trainmaster at Pt. Richmond, Philadelphia, Pa., has been appointed superintendent of the Wilmington & Columbia division, with office at Reading, vice Mr. Eckert, and N. W. Jones, inspector of transportation at Reading, has been appointed superintendent of the Philadelphia, Reading & Pottsville Telegraph Company, with office at Reading, vice C. M. Lewis, deceased.

A. E. Staub, chief inspector in charge of the weighing and inspection bureau of the Delaware, Lackawanna & Western, has been appointed superintendent of car service, with headquarters at Scranton, Pa. succeeding M. E. Casey, resigned. Mr. Staub began railway work in April, 1892, as a clerk in the freight office of the Delaware, Lackawanna & Western at Buffalo, N. Y. He subsequently served as assistant cashier and accountant; then from August, 1899, to November, 1907, as time-keeper and division accountant in the superintendent's office at Buffalo. In November, 1907, he was appointed assistant chief clerk in charge of operating statistics in the general superintendent's office at Scranton, Pa. From September, 1913, to July, 1914, he was engaged on special work for vice-president and controller of the Union Pacific. In July, 1914, he returned to the service of the Delaware, Lackawanna & Western as inspector in charge of the weighing and inspection bureau, which position he held at the time of his recent appointment as superintendent of car service of the same road, as above noted.

Homer L. Hungerford, whose appointment as general superintendent Eastern district of the Southern Railway System, with headquarters at Charlotte, N. C., has already been announced, was born on November 16, 1867, at North Wayne, Mich., and was educated in the high schools. He began railway work on March 14, 1884, as telegraph operator on the Michigan Central, and subsequently served as train despatcher on the East Tennessee, Virginia & Georgia, now a part of the Southern Railway at Selma, Ala., and later consecutively as train despatcher, chief despatcher and trainmaster. From July, 1899, to January, 1906, he was consecutively chief clerk to the division superintendent and trainmaster of the Mobile & Ohio. He was then for about one year superintendent of terminals at Little Rock, Ark., and division superintendent of the Memphis division of the St. Louis, Iron Mountain & Southern. On January 21, 1907, he was appointed superintendent of the Charleston division of the Southern Railway at Charleston, S. C. He subsequently served as superintendent of the Danville division at Greensboro, and since June, 1910, as superintendent of the Charlotte division at Greenville, S. C., of the same road, which position he held at the time of his recent appointment as general superintendent of the Eastern district of the Southern Railway System, as above noted.

Traffic

P. A. Bolopuo, chief clerk in the local freight office of the Buffalo, Rochester & Pittsburgh, at Pittsburgh, has been appointed Canadian agent, with headquarters at Toronto, Canada.

Mr. Bolopuo will act both for the freight and passenger departments of the company.

D. J. Bill has been appointed general eastern agent of the Cincinnati, Indianapolis & Western, with office at New York.

T. J. Shea, traveling freight agent of the Chicago & Alton, has been appointed assistant general freight agent, with headquarters at Chicago, Ill.

E. G. Chesbrough, traveling passenger agent of the Canadian Pacific at New York, has been appointed general agent passenger department, with headquarters at Atlanta, Ga.

Ralph M. Thayer has been appointed district passenger agent of the Pittsburgh, Cincinnati, Chicago & St. Louis, with headquarters at Chicago, Ill., succeeding G. L. A. Thomson, promoted.

J. W. Gardner has been appointed general agent, passenger department, of the Cleveland, Cincinnati, Chicago & St. Louis, with headquarters at Toledo, Ohio, succeeding C. B. Munyan, transferred to Indianapolis, Ind., as general agent.

P. W. Pummill, district passenger agent of the Northern Pacific, with office at Philadelphia, Pa., has been appointed general agent in charge of both freight and passenger business, with the same headquarters, succeeding J. S. Donal, resigned to enter other business.

B. G. Brown, assistant general freight agent of the Southern Railway at Atlanta, Ga., has been appointed general freight agent of the Southern Railway System, with office at Washington, D. C., and C. A. Egly has been appointed district freight agent, with office at New York.

J. H. Brown, general freight and passenger agent of the Gulf & Ship Island at Gulfport, Miss., has been appointed traffic manager, and P. L. Shepherd assistant general freight and passenger agent, has been appointed general freight and passenger agent. Both with offices at Gulfport.

J. N. Steadwell, assistant general freight agent of the Nashville, Chattanooga & St. Louis, has been appointed general freight agent, with office at Nashville, Tenn., and John F. Gaffney, Jr., city passenger agent at Nashville, Tenn., has been appointed assistant general passenger agent, with the same headquarters.

E. B. Finegan, chief of the tariff bureau of the Chicago, Milwaukee & St. Paul, with office at Chicago, Ill., has been appointed assistant general freight agent, with the same headquarters, succeeding C. A. Butler, promoted. O. T. Cull has been appointed chief of the tariff bureau, succeeding E. B. Finegan, promoted.

Henry A. Poveleite, who has been appointed assistant freight traffic manager of the Southern Railway System, Lines West, with headquarters at Cincinnati, Ohio, as has been announced in these columns, was born on April 1, 1875, at Pittsburgh, Pa., and was educated at Ohio State University. He began railroad work on June 15, 1894, in the general passenger office of the Baltimore & Ohio Southwestern at St. Louis, Mo. He subsequently served consecutively as stenographer, assistant to chief clerk, secretary to general freight agent, solicitation clerk, assistant chief clerk and chief clerk of the Cincinnati, New Orleans & Texas Pacific, at Cincinnati, Ohio. In May, 1905, he was appointed assistant general freight agent, and on January 1, 1907, was promoted to general freight agent of the same road, which position he held at the time of his recent appointment as assistant freight traffic manager of the Southern Railway System, Lines West, as above noted.

George K. Caldwell, who has been appointed assistant freight traffic manager of the Southern Railway System for the Lines East, with headquarters at Washington, D. C., was born in Knoxville, Tenn., and was educated in the grammar schools of his native town. He began railway work in 1894 with the East Tennessee, Virginia & Georgia and later served in various clerical positions in the general freight office of its successor, the Southern Railway. From April, 1903, to November, 1905, he was chief rate clerk in the general freight department of the Central of Georgia; then to February, 1907, was chief clerk in the general freight department of the Southern Railway. He subsequently served as chief clerk to the freight traffic manager, and from

September, 1908, to June, 1911, as chief clerk to the vice-president in charge of traffic of the same road. In June, 1911, he was promoted to division freight agent at Columbia, S. C., and in September of the following year was made assistant general freight agent at Atlanta, Ga. One year later he was appointed general freight agent at Washington, D. C., and now becomes assistant freight traffic manager of the Southern Railway System, Lines East, with headquarters at Washington, D. C., as above noted.

R. L. McKellar, who has been appointed foreign freight traffic manager of the Southern Railway System, with headquarters at Louisville, Ky., as has already been announced in these columns, was born on April 17, 1866, at Richmond, Va., and began railway work in August, 1884, as a clerk in the local freight office of the Memphis & Charleston and the East Tennessee, Virginia & Georgia, at Chattanooga, Tenn. Both these roads are now a part of the Southern Railway. From May, 1885, to October, 1890, he served successively as clerk, freight accountant and general bookkeeper in the auditor's office of the Memphis & Charleston at Memphis, Tenn., then to November, 1893, as soliciting agent of the same road at Memphis. He was then to May, 1895, general western agent of the same road and the East Tennessee, Virginia & Georgia at Kansas City, Mo. From May, 1895, to March, 1898, he was assistant general freight agent of the Memphis & Charleston at Memphis, then was assistant general freight agent of the Southern Railway at Memphis. On December 15, 1904, he was appointed assistant freight traffic manager at Louisville, Ky., of the same road, which position he held at the time of his recent promotion to foreign freight traffic manager of the Southern Railway System, as above noted.

Charles Spencer Fay, whose appointment as traffic manager of the Southern Pacific Lines in Louisiana was announced in these columns last week, was born at Minden, La., on October 23, 1867. He was educated at Sillman College, Clinton, La., and at the Louisiana State University. On November 1, 1889, he became clerk in the traffic department of the Southern Pacific Lines at New Orleans, La. In January, 1892, he was promoted to chief rate clerk and in the following year became chief clerk of the department. From October, 1898, to January, 1904, he was assistant general freight agent, following which he was appointed general freight agent of the Louisiana lines, with headquarters at New Orleans, La. He

continued to hold that position until his recent appointment, noted above. As traffic manager of the Southern Pacific Louisiana lines his jurisdiction extends also over the company's steamship lines to Havana, Cuba. He will also act as the southern agent of the New Orleans-New York Steamship Line.

Randall Clifton, whose appointment as freight traffic manager of the Southern Railway System Lines East, with office at Washington, D. C., has been announced in these columns, was born on July 9, 1873, in Russell county, Ala., and was educated in the public schools. He began railway work on January 1, 1890, and held various clerical positions in the freight and passenger departments of the Georgia, Midland & Gulf, until December, 1899. He was then appointed division passenger agent at Savannah, Ga., of its successor, the Southern Railway. On July 1, 1900, he was appointed chief clerk to the traffic manager at Washington, D. C., and in September, 1904, became division freight agent at Raleigh, N. C. The following December he was appointed assistant general freight agent at Memphis, Tenn., remaining at that place until April, 1905, when he was transferred in the same capacity to Atlanta, Ga. Two years

later he was appointed general freight agent at Atlanta, Ga. In September, 1912, he was promoted to assistant freight traffic manager at Washington, D. C., of the same road, which position he held at the time of his recent appointment as freight traffic manager of the Southern Railway System, Lines East, as above noted. Mr. Clifton's entire railway service has been with the Southern Railway, or with lines now comprising that company.

William Alexander Beckler, who has been appointed passenger traffic manager of the Southern Railway System, Lines West, with headquarters at Cincinnati, Ohio, as has been announced



W. A. Beckler

in these columns, was born on January 22, 1863, at Letart Falls, Ohio, and was educated in the public schools at Letart and at Normal School, Lebanon. He began railway work in August, 1886, as ticket seller on the Columbus, Hocking Valley & Toledo, now a part of the Hocking Valley, and later served as ticket agent on the same road. On January 1, 1890, he was appointed traveling passenger agent of the Chicago, St. Paul & Kansas City, now a part of the Chicago Great Western, remaining in that position until June, 1893,

when he went to the Great Northern as passenger agent at Spokane, Wash. From March, 1894, to August, 1908, he was northern passenger agent at Chicago, then to July, 1910, was assistant general passenger agent of the Queen & Crescent Route at Cincinnati, Ohio. On July 1, 1910, he was promoted to general passenger agent, with office at Cincinnati, which position he held at the time of his recent appointment as passenger traffic manager of the Southern Railway System, Lines West, as above noted.

Ralph H. Morris, who has been appointed assistant general freight agent of the Southern Railway System, with headquarters at Louisville, Ky., was born on February 25, 1866, at Henia, Ill., and was educated in the public schools of Fairfield, Ill. In 1884 he served as telegraph operator at Fairfield on the Louisville, Evansville & St. Louis, and later held various positions in the telegraph service of that road for two years. He was then secretary to the general manager at Louisville until 1887, and subsequently was local agent at Evansville, Ind., of the same road, until 1889. He was then appointed commercial agent of the Louisville, Henderson & St. Louis at St. Louis, Mo., remaining in that position until 1898, when he



R. H. Morris

returned to the service of the Louisville, Evansville & St. Louis as general agent at Evansville, and later served in the same capacity with its successor, the Southern Railway, until 1905, when he was appointed commercial agent of the Southern Railway at Cincinnati. In 1909 he was transferred in the same capacity to Chicago, which position he held at the time of his recent appointment as assistant general freight agent of the Southern Railway System, as above noted.

Engineering and Rolling Stock

Fred H. Linley has been appointed electrical engineer of the Duluth & Iron Range, with headquarters at Duluth, Minn.

W. L. Kellogg, whose resignation as superintendent of motive power of the Missouri, Kansas & Texas at Dennison, Tex., has been noted previously, has been appointed superintendent of motive power of the Pere Marquette, with headquarters at Detroit, Mich., succeeding J. J. Walters, resigned to go with another company.

O. R. Hale, general master mechanic of the United Railways of Havana, at Havana, Cuba, has been appointed assistant superintendent of motive power of the Cuban Central Railways, with headquarters at Sagua La Grande, Cuba, effective February 1. Mr. Hale began railway work in 1888 as an apprentice in the machine shops of the Southern Pacific at Tucson, Ariz., and in 1904 went to Mexico as master mechanic of the Torreon division of the Mexican Central. He remained in that position until 1912, and then went to Havana as general master mechanic of the United Railways of Havana, which position he held at the time of his recent appointment as assistant superintendent of motive power of the Cuban Central Railways, as above noted.

Purchasing

John B. Livingston has been appointed storekeeper Western Lines of the Grand Trunk, with headquarters at Battle Creek, Mich., vice John R. Crowell, deceased.

OBITUARY

James R. Bell, special representative of the traffic and commercial development department of the Baltimore & Ohio, died at Johns Hopkins Hospital, Baltimore, Md., on February 1. Mr. Bell was formerly division freight agent at Cumberland, and in October, 1916, was granted leave of absence on account of ill health.

J. M. Clifford, superintendent of the Superior division of the Chicago, Milwaukee & St. Paul, with headquarters at Green Bay, Wis., died at that city on February 1 at the age of 60. His first railroad experience was with the Milwaukee Northern as station agent at Iron Mountain, Mich. In 1892, when that road was taken over by the St. Paul, he continued in that position. In 1900 he was transferred to Escanaba, Mich., where he was placed in charge of the St. Paul docks. He had been superintendent of the Superior division since October, 1913.

Oliver Howell Crittenden, chief engineer of the International & Great Northern, whose death was announced in these columns last week, was born at Notasulga, Ala., on February 20, 1861. He received his engineering education at the Agricultural and Mechanical College, Auburn, Ala., from which he graduated in 1881. Shortly after leaving school he entered the engineering department of the Louisville & Nashville. From this time until 1897, he was engaged consecutively in location and construction work for the Queen & Crescent, the Illinois Central, the St. Louis-San Francisco and the Seaboard Air Line. In 1897, he became a locating engineer of the Kansas City Southern and was later promoted to roadmaster, and then to engineer of maintenance of way, division superintendent, and superintendent of bridges and buildings. In April, 1902, he became assistant engineer of the International & Great Northern, and in November, 1905, he was appointed chief engineer.



O. H. Crittenden

Equipment and Supplies

LOCOMOTIVES

THE PHILADELPHIA & READING is considering the purchase of locomotives.

THE RICHMOND, FREDERICKSBURG & POTOMAC is reported in the market for locomotives.

THE ILLINOIS CENTRAL is reported as contemplating the purchase of 75 locomotives.

THE ELGIN, JOLIET & EASTERN is in the market for 10 switching and 10 Mikado locomotives.

THE FORT SMITH & WESTERN has ordered 2 Mikado locomotives from the Baldwin Locomotive Works.

GRAHAM, HINKLEY & Co., Mexico, have ordered 2 ten-wheel locomotives from the Baldwin Locomotive Works.

THE SUN NING RAILWAY (China) has ordered 2 Mogul type locomotives from the Baldwin Locomotive Works.

THE CIE FRANCAISE DE METAUX (France) has ordered one four-wheel locomotive from the Baldwin Locomotive Works.

THE PIERCE COAL COMPANY, Mulberry, Mo., has ordered one four-wheel locomotive from the Baldwin Locomotive Works.

THE PHOENIX IRON COMPANY, Phoenixville, Pa., has ordered one four-wheel locomotive from the Baldwin Locomotive Works.

THE UNITED STATES METALS REFINING COMPANY, Chrome, N. J., has ordered one four-wheel switching locomotive from the Baldwin Locomotive Works.

THE PENNSYLVANIA EQUIPMENT COMPANY, Philadelphia, Pa., is in the market for 2 or 3 second-hand 3-ft. gage locomotives for freight and passenger service.

THE CHICAGO & NORTH WESTERN, reported in last week's issue as being in the market for 30 locomotives, has ordered 20 Mikado locomotives from the American Locomotive Company.

THE LEHIGH VALLEY, reported in the *Railway Age Gazette* of January 19 as contemplating the purchase of locomotives, has issued inquiries for 36 Santa Fe and 20 Pacific type locomotives.

THE SEABOARD AIR LINE was incorrectly reported in last week's issue as having ordered 30 locomotives from the American Locomotive Company. The order should have been given as 16 Mallet (2-8-8-2) type locomotives ordered from the American Locomotive Company, and 10 Santa Fe type locomotives ordered from the Baldwin Locomotive Works.

THE NEW YORK CENTRAL, reported in last week's issue as having ordered 45 locomotives from the Lima Locomotive Works, should have been reported as having ordered 90 engines from that company. The 90 included 45 Mohawk (4-8-2) type locomotives, and 25 eight-wheel and 20 six-wheel switching locomotives. The New York Central, as reported in last week's issue, also ordered 50 locomotives from the American Locomotive Company, and has since increased this to 60 engines. These two orders are in addition to 230 locomotives ordered last September for delivery next fall.

FREIGHT CARS

THE LOS ANGELES & SALT LAKE is inquiring for 6 caboose cars.

THE INTERSTATE RAILROAD has ordered 500 freight cars from the Pressed Steel Car Company.

THE RICHMOND, FREDERICKSBURG & POTOMAC, reported in the *Railway Age Gazette* of January 12 as having issued inquiries for 300 to 400 box cars, has ordered 200 box cars from the Pressed Steel Car Company.

THE CHICAGO, MILWAUKEE & ST. PAUL was reported in the *Railway Age Gazette* of January 12 as about to build 1,000 steel center sill gondola cars in its Tacoma, Wash., shops. It will

also build 250 100,000-lb. capacity wooden ore cars, 1,500 steel center sill gondola cars, and 1,000 80,000-lb. capacity steel center sill box cars at its Milwaukee shops. As noted in the *Railway Age Gazette* of January 26 it has also issued inquiries for 250 flat and 250 refrigerator cars.

PASSENGER CARS

THE PHILADELPHIA & READING is reported as considering the purchase of possibly 50 coaches for suburban service.

THE DELAWARE, LACKAWANNA & WESTERN has ordered 10 coaches from the Pullman Company, in addition to 10 express cars, reported in the *Railway Age Gazette* of January 26.

IRON AND STEEL

THE FRENCH GOVERNMENT is negotiating for 150,000 tons of heavy section rails, and 20,000 tons of medium section rails.

THE ST. LOUIS-SAN FRANCISCO has ordered 518 tons of steel for its Big Warrior bridge, near Cordova, Ala., from the Virginia Bridge & Iron Works.

THE PENNSYLVANIA RAILROAD has ordered 325 tons of steel from the American Bridge Company for three bridges at Altoona and McGees, Pa., and another point.

MISCELLANEOUS

THE PENNSYLVANIA EQUIPMENT COMPANY, Philadelphia, Pa., is in the market for two 60 to 70 ft. turntables.

THE YAZOO & MISSISSIPPI VALLEY has given a contract to the Railroad Water & Coal Handling Company of Chicago for a 300-ton coaling station, to serve four tracks. This station is of the Holman type, of timber construction with a concrete foundation.

SIGNALING

THE PENNSYLVANIA LINES are building a 24-lever mechanical plant at West Effingham, Ill., controlling a yard junction, a 48-lever electro-mechanical plant near East St. Louis, Ill., at the grade crossing of the Alton & Southern, and a 32-lever mechanical plant at Smithboro, Ill., protecting a grade crossing with the Chicago, Burlington & Quincy. Two mechanical plants are to be installed, one of 12 levers at Gibson, Ind., and one of 8 levers at Reelsville, Ind., both protecting siding entrances.

ENGLISH FREIGHT CAR POOL.—For the greater part of the past year there were in operation three freight car pools. One applied to the open cars of the Great Northern, Great Eastern and Great Central companies, numbering in the aggregate—taking the 1913 figures—79,800 freight cars. Then came another but separate pool of the cars of the London and North-Western, Great Western, Midland, North Eastern and Lancashire and Yorkshire companies, which owned 329,094 freight cars. The three southern Scottish companies followed, again independently of the others, and they provided a pool, taking once more the 1913 figures, 111,767 open freight cars. Many companies were outside these pools, but the number of cars owned by them was not very great. Among all the outstanding English and Welsh companies there was a total of only 58,278 open freight cars, of which the Cambrian had 1,421, Cheshire Lines Committee 3,270, Furness 6,286, Hull and Barnsley 2,862, London and South-Western 9,917, London, Brighton and South Coast 7,818, North Staffordshire 5,370, South-Eastern and Chatham 9,209 and Taff Vale 1,436. Out of the Scottish pool there were only the 2,918 open freight cars of the Great Northern and the 1,799 of the Highland. On December 26 it was announced by the Railway Executive Committee that, as from the 2d inst., all open goods and coal cars, suitable for general purposes, belonging to railway companies under Government control, might be loaded with merchandise consigned to any station on or beyond the line of any of the controlled companies, irrespective of the ownership of such cars, and of the routes by which they were received, full or empty. There is, therefore, now in operation common user of all railway owned open freight cars, and the three independent pools have ceased to exist.—*The Engineer*, London.

Supply Trade News

Arthur King, president of the Middletown Car Company, died at his home at Middletown, Pa., on January 31 of heart disease. He was 75 years old.

The Standard Forgings Company, Chicago, Ill., at its annual meeting a few days ago elected E. W. Richey vice-president, and J. G. Coles, treasurer.

At the annual meeting of the stockholders of Templeton, Kenly & Co., Ltd., in Chicago, on February 3, 1917, H. W. Finnell, vice-president of the company, was elected a director.

A fire on February 1, originating in the boiler room of the Davenport Locomotive Works, Davenport, Ia., caused damage estimated at \$20,000. The fire was caused by an explosion due to an overflow of oil into a furnace.

D. C. Thomas, superintendent of small supplies in the purchasing department of the Atchison, Topeka & Santa Fe, has been appointed sales representative of the Barco Brass & Joint Company, of Chicago, in western territory, with headquarters at Kansas City, Mo.

John M. Trevor has been appointed representative of the concrete mixer department of the Chain Belt Company of Milwaukee, and is located at 30 Church street, New York. Mr. Trevor has been in the concrete mixer business for about 10 years. He was manager of the Chain Belt Company's concrete mixer department at Milwaukee for seven years.

William M. Bailey has been appointed assistant to A. C. Dinkey, president of the Midvale Steel Company, Cambria Steel Company, Worth Brothers Company and Wilmington Steel Company, effective February 1. Mr. Bailey will have charge of accidents and workmen's compensation, safety and welfare, labor, real estate and housing, police, insurance, contributions and such other matters as may be assigned to him. He will be in charge of organizing an entirely new department of the combined companies. Mr. Bailey was formerly secretary to Mr. Dinkey.

Pratt & Lambert, Inc., varnish makers, Buffalo, N. Y., have elected the following officers and directors for the coming year: W. H. Andrews, chairman of the board; J. H. McNulty, president; J. N. Welter, vice-president; J. B. Bouck, Jr., secretary and treasurer; A. C. Bedford, C. M. Pratt, F. W. F. Clark, R. F. Clark, S. N. Griffiths and J. P. Gowing, directors. On January 3 the sales force of the company held its biennial convention at Buffalo. This convention marked the completion of the president's twenty-fifth year with the company. About 75 salesmen and executives attended the meetings and discussed new developments in the chemistry of varnish-making and better methods of marketing the firm's products. F. W. F. Clark, retiring vice-president, made the trip from his home in London, Eng., to attend the convention.

The Westinghouse Electric & Manufacturing Company announces that the plot of ground recently purchased at Essington, near Philadelphia, will form a new industrial center for the Westinghouse Electric interests. The site embraces about 500 acres, with a frontage of approximately one mile on the Delaware River. Additional transportation facilities will be afforded by tracks from the Pennsylvania and Philadelphia & Reading Railroads. This new center will be devoted to the production of large apparatus, the first group of buildings being for power machinery, principally steam turbines, condensers and reduction gears. The initial development will cost in the neighborhood of \$5,000,000 or \$6,000,000, occupying about one-fifth of the area of the entire plot. The group will consist of the following buildings: two large machine shops, an erecting shop for heavy machinery, forge shop, pattern and pattern-storage shop, and power house. Work will begin on these as soon as satisfactory building contracts can be let. The number of employees to be engaged at the new plant has not as yet been definitely determined, but will number several thousand people, and undoubtedly will in the future equal the number employed at East Pittsburgh, representing over 20,000 people.

Walter Kidde, engineer-constructor of 140 Cedar street, New York, has incorporated his organization under the title of Walter Kidde & Co., Inc. This business was established in 1900, and from the first the functions of the engineer and constructor were combined. The combined construction and equipment of factories has been one of the strongest points of Mr. Kidde's organization, and in this class of work its preferred practice is to make a complete job from foundation to the installation of the last piece of apparatus, so that they turn over to the client a finished plant ready to begin operation. The new corporation will take care of the large and continued growth of the business along the lines which have proved so satisfactory in the past, and the essential features of the organization will not be changed. Mr. Kidde's chief associates, who have been his partners on the "Carnegie Plan," will now become directors and stockholders of the new corporation, the officers of which are: Walter Kidde, president; B. G. Worth, vice-president; I. R. Lewis, secretary and treasurer. These are all members of the board of directors, which also includes Henry Lang, who is vice-president of the Ingersoll-Rand Company, and E. S. Boyer, who is associated with the American Hard Rubber Company.

Charles T. Schoen

Charles T. Schoen, the inventor of the pressed steel car, and at one time president of the Pressed Steel Car Company, died at his home at Moylan, near Philadelphia, February 4, aged 72 years. Mr. Schoen was born in Delaware and was educated in Wilmington. He worked there with his father, Henry Casper Schoen, in whose shops he learned the cooper's trade. He later removed to Philadelphia to assume a position with Charles Scott, who was engaged in the manufacture of car springs. He later developed pressed steel equipment and fittings for wooden freight cars, including car trucks, and finally the complete steel car. The first company to manufacture his steel car was known as the Schoen Pressed Steel Company, incorporated in 1895. In 1899 a combination of this company and the Fox Pressed Steel Equipment Company, which two companies then controlled practically all the pressed steel car business in the country at the time, brought about the Pressed Steel Car Company of which Mr. Schoen was president until his retirement in 1902. Mr. Schoen was also the inventor of a solid forged and rolled steel car wheel and was head of the Schoen Steel Wheel Company. After his retirement as president of the Pressed Steel Car Company he became chairman of the board of directors of the company. He was also vice-president of the Colonial Trust Company, of Philadelphia.

Chicago Pneumatic Tool Company

The Chicago Pneumatic Tool Company showed a net profit of \$953,422, or 14.9 per cent on the stock for the year ended December 31, 1916 as compared with a net profit for the previous year of \$533,247. The surplus was increased from \$2,278,000 to \$2,836,000, and the accounts receivable were increased by \$500,000 and the inventories by \$700,000. The principal items in the balance sheet follow:

ASSETS	
Real estate, buildings, plants, machinery, patents, good will, less reserves	\$7,190,686
Capital stock of other companies and other investments at cost, less reserve	1,191,370
Treasury bonds	89,000
Treasury stock	37,000
Cash in banks and on hand	256,370
Accounts and bills receivable	2,023,612
Inventories	2,873,909
Sinking fund	1,116,595
Total	\$14,778,544
LIABILITIES	
Capital stock issued	\$6,485,800
First mortgage bonds issued	2,500,000
Interest accrued on bonds payable January 1, 1917, and dividend payable January 25, 1917	124,863
Bills payable	1,050,000
Accounts and vouchers payable	635,750
Sinking fund for bonds	1,116,595
Reserve for taxes	28,676
Surplus	2,836,848
Total	\$14,778,544

Pettibone-Mulliken Company

The annual report of the Pettibone-Mulliken Company, Chicago, for the year ended December 31, 1916, shows a surplus above all charges and preferred dividends of \$442,751. The company earned 6.33 per cent on its common stock. The income account for both 1916 and 1915 is as follows:

	1916	1915
Manufacturing profits, less maintenance, taxes, selling and administrative expenses	\$606,152	\$219,152
Miscellaneous income	11,599	13,659
Net income before deducting depreciation	\$617,751	\$232,811
Surplus January 1, 1916 and 1915	225,334	409,475
Total	\$843,086	\$642,286
Deduct—		
First preferred dividends	\$122,500	\$115,938
Second preferred dividends	52,500	52,500
Depreciation of plant	95,027	72,514
First preferred sinking fund	175,000	176,000
Surplus, December 30, 1916	\$398,059	\$225,334

SPECIAL SURPLUS ACCOUNT

(Reserve for retirement of first preferred stock)	
Special surplus, January 1, 1916	\$345,000
Appropriated in 1916	175,000
Discount on first preferred canceled in 1916	31,000
Total	\$551,000

George Henry Hill

George Henry Hill, assistant engineer of the railway and traction department of the General Electric Company, died of pneumonia at his home in Schenectady, January 31. Many important developments in the application of electric power to new uses owe their success to Mr. Hill's efforts. Early in his career as an engineer, he invented and patented the electric system for operating bulkhead doors on shipboard, which many years ago was standardized by the navy department for United States naval vessels and is used on commercial and naval vessels in many parts of the world; later he assisted in the development of the multiple unit system of train control, and in connection with this work produced the multiple unit



G. H. Hill

automatic system substantially as it exists today. During the past few years Mr. Hill devoted considerable time to the electrification of steam railroads and has been an active supporter of high voltage direct current for interurban railways and for steam trunk line electrifications. More recently he was engaged in exhaustive studies of the interference of transmission and railway feeder lines with telephone and telegraph circuits.

Mr. Hill was born at Williamsport, Pa., on December 11, 1872, where he attended the local preparatory schools and Dickinson Seminary. After completing his preparatory work, he entered Johns Hopkins University, graduating from the electrical engineering course in 1895. Immediately upon graduation he became associated with Frank J. Sprague, who was at that time engaged in the development of electrically operated elevators and multiple unit control for railway service. He was advanced rapidly and soon became chief of construction of the elevator department, with his office in New York City. When the Sprague Electric Company gave up its elevator business in 1900 he became chief engineer for the company at Bloomfield, N. J., and was directly responsible with Mr. Sprague for the development of multiple unit control for railway trains.

In 1902 the Sprague patents and interests were taken over by the General Electric Company, and Mr. Hill went to Schenectady to follow the further development of train control. Within two years he had become assistant to F. E. Case in supervision of all train control for the General Electric Company, directing the

important steps in the manufacture of car equipments for the Manhattan Elevated in New York, the Boston Elevated, Baltimore & Ohio electric locomotives and later equipments for the Interborough Rapid Transit, the Northwestern Elevated and the Philadelphia Rapid Transit Company. The equipment of the New York Central electric locomotives was also under construction at this time, together with many equipments for foreign countries, including England, France, Italy, Cuba and Peru.

In 1906 Mr. Hill became assistant engineer of the railway and traction department in charge of the group of engineers dealing with the general problems arising in connection with electric railway apparatus and engineering. In this position his ability and experience were invaluable and he was one of the company's most important advisors, aiding in the solution of many difficult problems connected with the railway industry. Articles from his pen on railway subjects have frequently appeared in the technical press and in the proceedings of the American Institute of Electrical Engineers of which he was an active member. During his active career, Mr. Hill made many inventions both in the railway and other electrical fields, and between 40 and 50 patents were granted to him.

TRADE PUBLICATIONS

VALVES.—The Mesta Machine Company, Pittsburgh, in Bulletin D describes and illustrates the Mesta automatic plate valves (Iversen patent).

POWER HAMMERS.—Beaudry & Co., Inc., Boston, Mass., have recently issued a 20-page booklet 6 in. by 9 in. in size, illustrating and describing the line of Beaudry hammers.

CAR LIGHTING DATA is the title of a booklet containing fourteen wiring diagrams of U. S. L. axle equipment, issued by the U. S. Light and Heating Company, Niagara Falls, N. Y.

BELT FASTENERS.—The Crescent Belt Fastener Company, New York, describes and illustrates its devices in a pamphlet entitled "A Little Selling Talk." Crescent belt fasteners are adapted to use with all kinds of belting.

TAPS AND DIES.—Bulletin No. 1, recently issued by the Greenfield Tap & Die Corporation, Greenfield, Mass., is entitled "How to Measure Screw Threads," and describes the G T D thread limit gage, which the company is making for this purpose.

ELECTRICAL SUPPLY YEAR BOOK.—The 1917 catalogue of the Western Electric Company covers nearly everything electrical in its 1,300 pages. Following a policy inaugurated two years ago, the list prices are so adjusted that one basic discount is used to give the net cost of any item in the book; this feature makes the year book unique as a buyer's guide.

GUN-CRETE.—The Cement Gun Construction Company, Chicago, has issued a 16-page booklet, covering the composition of Gun-Crete, its application and the advantages of its use. The booklet is illustrated with photographs, showing its use in structures for rust and fire protection, in dams for waterproofing and in repairs to old and defective structures of all descriptions.

ROOF VENT AND LEADER CONNECTIONS.—The Barrett Company, New York, has issued a 20-page booklet describing the "Holt" roof connections. It contains descriptions of five types of roof connections, with illustrations and detailed drawings of each device. It also contains a drainage table, showing the size of leader outlets required for roof areas and for different slopes and roofing materials.

WOOD BLOCKS.—The Barber Asphalt Company of Philadelphia recently issued an 18-page booklet describing its Non-X-Ude wood blocks, and illustrating their use in various kinds of service. Four pages are devoted to specifications covering the kind and grade of wood used, the size and treatment of blocks, the preservative used, the inspection at the works and the laying of the blocks. Several pages are devoted to telling why the blocks do not bleed, why they are durable and why they are used in various places. The booklet contains a table showing the weights of the different size blocks under treatment varying from 12 to 20 lb. per cu. ft., and a comparative table compiled by the United States Forest Products Laboratory showing the average absorption of oil in lb. per cu. ft., the per cent of bleeding and the per cent of increase from swelling of blocks treated with water gas as compared with other treatments.

Railway Construction

ARANSAS HARBOR TERMINAL.—This company has applied to the Texas Railroad Commission for authority to issue \$213,000 of securities, the proceeds to be used for the restoration of property damaged by the storm last August. J. S. Clark, secretary, Aransas Pass, Tex.

BELLE FOURCHE & NORTHWESTERN.—Preliminary surveys have been completed for an extension from Belle Fourche, S. D., to Miles City, Mont., approximately 200 miles. It is planned to begin construction in the spring. The exact route of the road has not yet been decided upon, nor are any estimates of the project as a whole ready for consideration. J. H. Thomas, chief engineer, Belle Fourche, S. D.

BRYAN & CENTRAL TEXAS.—Contracts will soon be awarded for an extension by this company of its lines from Bryan, Tex., through Stone City, Pittsbridge, and Myers to Whittaker, about nine miles. There will be five bridges, from 80 ft. to 200 ft. in length. L. M. Levinson, general manager, and A. B. Carson, chief engineer, Bryan, Tex.

CANADIAN NORTHERN QUEBEC.—The Dominion Parliament is being asked to extend the time for the completion of the projected branch lines from Rawdon, Que., to the National Transcontinental, with a branch from Rawdon to Joliette; and a line from St. Jerome to St. Eustache.

HARNEY VALLEY RAILROAD.—Articles of incorporation have been granted to this company for the construction of a line from Bend, Ore., through Burns to Klamath Falls and San Francisco, Cal. The company is organized under the laws of Washington, and is capitalized at \$25,000. The articles permit the construction of either a steam or an electric road. H. H. Parker and Isaac D. Hunt, vice-president of the Ladd & Tilton Bank, Portland, Ore., are interested.

KANSAS & OKLAHOMA SOUTHERN.—This company has awarded a contract to Samuel Stephenson's Sons & Co., New Haven, Conn., which in turn sublet to the Railroad Construction Company, New York City, for the construction of a line from Wichita, Kan., to Fort Smith, Ark., 165 miles. S. M. Porter, president, Caney, Kan.

MILTENBERG & SOUTHEASTERN.—This company has been incorporated with a capital of \$100,000 for the construction of a line from Miltenberg, La., to a connection with the St. Louis, Iron Mountain & Southern, near Anandale, about nine miles. Work is progressing, and it is expected to have the line in operation about April 1. W. D. Brewer, president; E. Bullington, chief engineer, Miltenberg, La.

OZARK & ARKANSAS MIDLAND.—This company, which has been incorporated with a capital of \$750,000, of which about \$250,000 has already been subscribed, intends to construct a line from Rogers, Ark., to Kingston, approximately 40 miles. Eventually it is planned to continue the line to Bald Knob, Ark., about 125 miles. To this end the line from Monte Ne, Ark., to Piney, eight miles, and operated by the Ozark Land & Timber Company, has been acquired. The line will connect with the St. Louis-San Francisco at Rogers. Among the directors are G. G. Wright, Dallas, Tex.; W. A. Mundell, Rogers, Ark., and C. P. Hummel, Monte Ne.

OZARK VALLEY.—Plans are being formulated by this company for a line from Cascade, Mo., north to Buckhorn, about four miles. No contracts will be let until the early spring. There will be one 90-ft. trestle. Charles Thorburn, chief engineer, Williamsville, Mo.

PINE BLUFF & NORTHERN.—This company plans to build an extension from its present terminus at McCreanor, Ark., to Pine Bluff, about 35 miles. It is the present plan to build five miles of this line each year with its own forces. J. K. Riffel, receiver, Southern Trust building, Little Rock, Ark.

ROME & NORTHERN.—This company has given a contract, it is said, to B. M. Brewer, Rome, Ga., to build a 2-mile line from Shackleton, Ga., to mines.

SOUTHWEST MISSOURI.—This company is planning an extension from Galena, Mo., to Baxter Springs, Kans., approximately 10 miles. A. H. Rogers, Webb City, Mo.

SOUTHERN NEW ENGLAND.—John S. Murdock, vice-president of this company, in a communication with the mayor of Providence says that work on the grading of the company's road in the state of Rhode Island is to be resumed in the coming spring. The company is negotiating with the city of Providence for the construction of piers for ocean vessels below Field's Point. Up to the end of 1912, when construction work was suspended, the company had expended in Rhode Island about \$1,500,000. In the state of Massachusetts, the grading has been substantially finished. The line is being built from Palmer, Mass., southeast to Providence, R. I.

STANLEY RAILWAY.—Application for incorporation has been made by this company in Connecticut to build a line from New Britain, Conn., northeast to Hartford, about 10 miles. The incorporators include G. A. Quigley, G. M. Landers and E. O. Kilbourne, New Britain, and J. A. Pilgard, Hartford.

WINCHESTER & WESTERN.—A contract has been given to the Inter Mountain Construction Company to build from Winchester, Va., northeast to Gainsboro, thence southwest via Gore, Rock Enon Springs, and Capon Springs, W. Va., to Wardensville, about 35 miles. The line is being built to carry iron ore and lumber. W. B. Cornwell, president; J. K. Monroe, chief engineer. (February 2, p. 209.)

RAILWAY STRUCTURES

GRAND ISLAND, NEB.—The Union Pacific will erect a one-story passenger station 74 ft. by 294 ft., of brick and stone construction, with concrete foundation. The contract has been awarded to the Ziegler Brothers Construction Company, Junction City, Kan.

GUTH, Pa.—The Philadelphia & Reading has given a contract to Seeds & Derham, Philadelphia, Pa., for the construction of a reinforced concrete bridge to be built on the Castasauqua & Fogelsville, over Jordan Creek and a public highway at a point east of Guth. The work calls for the construction of three 33-ft. concrete arch spans, and the bridge is to have a total length about 350 ft.

HERSHEY, Pa.—The Philadelphia & Reading has given contracts to the James McGraw Company, Philadelphia, Pa., for the foundation and to the McClintic Marshall Company, Pottstown, for fabricating and erecting the steel superstructure of an overhead bridge to be 91 ft. 6 in. long to carry a public highway over the tracks at a point east of Hershey.

KINSTON, N. C.—Plans have been filed with the Corporation Commission of North Carolina for the construction of a union passenger station to be used jointly by the Atlantic Coast Line and Norfolk Southern, at Kinston. The structure is to be built on Caswell street; it will be of brick construction, one story high, 32 ft. wide and 134 ft. long.

PALMYRA, Pa.—The Philadelphia & Reading has given contracts to the James McGraw Company, Philadelphia, Pa., for the foundation and to the McClintic Marshall Company, Pottstown, Pa., for fabricating and erecting the steel superstructure of an overhead bridge to be 65 ft. 6 in. long to carry a public highway over the tracks at a point west of Palmyra.

PORTLAND, ORE.—The Pearson Construction Company, Seattle, Wash., has been awarded a contract by the city for the construction of seven concrete viaducts over the tracks of the Oregon-Washington Railroad & Navigation Company, at a cost of about \$500,000. The contract also calls for repairs to one wooden trestle and the construction of two additional temporary trestles. Work will begin about March 1.

READING, Pa.—The Philadelphia & Reading has given a contract to the Reading Contracting Company for the sub-structure of a through plate girder span to be built over River Road at Reading. A sub-contract has also been given to the same contractors for a deck plate girder bridge to be built south of Winfield on the Shamokin, Sunbury & Lewisburg branch.

RICHMOND, VA.—The Atlantic Coast Line has asked permission from the city authorities of Richmond to build a one-span concrete bridge over Arch street.

Railway Financial News

ARKANSAS HARBOR TERMINAL.—This company has asked the Texas railroad commission for authority to issue \$213,000 securities to pay for the restoration of property damaged by floods last August.

CHICAGO, ROCK ISLAND & PACIFIC.—The joint reorganization committee has declared the reorganization plan effective. Holders of about 95 per cent of the 20-year debenture bonds and of about 96 per cent of the stock have assented to the plan. The first instalment of \$10 on the \$40 assessment required from each share of stock is payable March 3.

Seward Prosser, chairman of the joint reorganization committee, says that an understanding has been reached with the Peabody committee, representing the first and refunding mortgage bonds, as to the terms on which this committee will withdraw the foreclosure suit which it brought. It is also announced that the \$5,500,000 which certain former directors agreed to put up to settle suits brought against them by minority stockholders is to be used to pay for \$5,000,000 6 per cent preferred stock of the new company, which will be in addition to the \$20,000,000 6 per cent preferred to be issued in exchange for the outstanding debentures of the old company.

ERIE.—This company has asked the New York Public Service Commission for its approval of a first and refunding mortgage for \$500,000,000. No request is made to issue any bonds as yet under this mortgage.

MISSOURI PACIFIC.—The \$37,255,000 stock of the St. Louis, Iron Mountain & Southern, which is pledged to secure a like amount of 4 per cent Missouri Pacific bonds, is to be offered at foreclosure sale on February 28 at an upset price of \$15,200,000.

NEW YORK, NEW HAVEN & HARTFORD.—The following list of the largest stockholders of the New York, New Haven & Hartford was compiled by the Wall Street Journal:

	1917.	1916.	1915.
Pennsylvania Railroad	48,125	48,125	53,025
Mutual Life Ins. Co., N. Y.	35,640	35,640	35,640
American Express Co.	30,324	30,324	50,324
Adams Express Co.	24,730	24,730	24,730
C. M. Pratt, et al., tr., N. Y.	16,045	16,069	16,045
New York Central R. R.	15,456	15,456	15,456
C. D. Barney & Co., N. Y.	6,600	12,500	.....
Dominick Bros. & Co., N. Y.	10,550	11,550	13,880
M. F. Plant, N. Y.	7,300	7,500	7,500
W. W. Astor, N. Y. ....	.....	6,840	6,840
A. H. Sanford, N. Y.	3,734	4,944	3,454
J. H. Wesson, Springfield.	4,640	4,500	4,500
R. Olney, et al., tr., Boston.	4,281	4,563	4,563
L. V. Harkness, N. Y. ....	.....	4,700	4,700
W. V. Astor, N. Y.	5,229	4,729	4,729
Lee, Higginson & Co.	3,384	4,299	3,334

UNION PACIFIC.—This company is to change its period of making annual reports to stockholders from the fiscal year ending June 30 to the calendar year ending December 31.

AMERICANS IN RUSSIAN RAILROAD PLAN.—According to press despatches American and Russian financiers and engineers are negotiating with the council of ministers on a plan to build a network of railways between Moscow and the Don, as well as a trans-Caucasian railroad to Vladivostok, Tiflis, and along the Volga. It is proposed that the new railroads, after private operation for nine years, revert to the government.

NEW RAILWAY LINES IN MADAGASCAR.—The Madagascar Government increased its railway system by about 100 miles in 1915; 52 miles of the 80-mile branch line from Moramanga to the Ambatondrazaka district were opened to traffic between January and June, 1915, and on January 1, 1916, 11 miles of the colony's branch line of 107 miles from Tananrivo to Antsirabe were also opened to traffic. It is estimated that the roadbed of the Ambatondrazaka line will be completed in the fall of 1916, and that the Antsirabe line, which is being gradually carried forward, will be completed in 1918, when it is hoped it will be possible to purchase the necessary rails, now lacking, at a normal price.—*Commerce Report.*